

THE AUTOMOBILE



STARTING UP THE FIRST HEAVY GRADE OF THE LONG CLIMB ON BOSTON HILL WHERE MANY CONTESTING CARS CAME TO GRIEF

Oakland Wins Buffalo Sweepstakes

**Flanders and Oakland Win
Runabout Divisions**

**Maxwell and Lion Win Touring
Car Classifications**



BUFFALO, N. Y., Sept. 11—Oakland 24, a 40-horsepower runabout competing in Class 3A, proved the winner of the Laurens Enos trophy and the sweepstakes in the second annual reliability run of the Automobile Club of Buffalo, which was completed Saturday. The car was driven by Howard A. Bauer, contest driver of the manufacturing company, and had a clean score on the road and in the brake, clutch and motor tests. On final

technical examination, which was unusually thorough and searching, the car was given 8 demerits for five loose rivets and bolts, a loose fan pulley and a slight leak in a water connection.

Bauer drove the car with exceeding skill and care over a route of 855 miles, laid out over a series of hills that were unprecedented in reliability work, and the conditions were further complicated by intermittent showers and downpours that rendered some of the hills tractionless. There were three mountains included in the route, respectively and respectfully, Buffalo Hill, Boston Hill and Clarkesburg Mountain. Bauer nursed his car

over this trio and maintained his class schedule at every control. He of all the contesting drivers made a special effort toward uniform speed, varying only on the big hills, and making no effort to reach control ahead of time.

Flanders 4, driven by T. R. Bell, won the Class 1A division for runabouts with a total penalization of 48 points. Aside from its road penalties, which were the result of taking on water out of control, and lateness, this car was demerited 16 points on final examination. Four loose bolts, a broken fender and 5 points in the clutch test comprised the black marks. All were due to the bad roads, stiff hills and long schedule, and the showing of the car was most creditable.

Maxwell 2 won the 3A touring class with 51 demerits. These penalties were practically all accountable to troubles that had their origin in the carburetor and developed in greatest force immediately after a supply of high-proof gasoline had been taken on board at the noon control on the first day's run. This was different in quality than was appropriate for the carburetor adjustment, and resulted in considerable trouble for the car. In addition, the hills caused an extra drain on the water supply and gasoline consumption and renewals were necessary a number of times. In the final technical this Maxwell, which was driven



Maxwell "2," winner of the 3A class for touring cars and third in the general standing



Oakland 24, winner of Laurens Enos trophy in sweepstakes class



Oakland "24," the winner, being tested for brake efficiency by Chairman Edwards

by E. G. Gager, of the Pittsburgh branch of the United States Motor Company, was penalized 16 points. In the brake test the car slipped over the line 5 feet and Chairman Edwards, of the technical committee, discovered a broken lamp bracket, missing

ignition terminal, leaky gasoline connection and two loose rivets.

The car showed fine speed on the roads and steadiness on the hills, but like every other contestant it was sharply tried by the first day's running.

Lion 6, winner of the 4A class, was heavily penalized through the breaking of a side member. This car was driven by Harry Blomstrom, from the Lion factory at Adrian, Mich., but was seriously handicapped throughout the run by a weak left rear spring. Blomstrom is an unusually skillful driver, but before the first day was over the car had laid the foundation for its ultimate demerits. The weak spring caused the car to pound on the rough roads, and this pounding loosened the drip pan under the engine. Blomstrom fixed it several times during the day and "took his points" for work. But the repairs could not be made in thorough fashion, and eventually, to make controls and stop the constant penalization, Blomstrom dropped the pan and went ahead. The second day was over comparatively dry roads and the car came through with few demerits, but on the third day water lay in pools on some sections of the route and, water splashing up past the place where the pan is held ordinarily, it short-circuited the magneto and led to considerable demeriting. On this day's run the Lion, at the head of the procession, picked up the pacemaker's flag at Levant, where a bridge had been washed out. The Pierce-Arrow pacemaking car, in going around the broken bridge, cut through the sod in a wet meadow and stalled for several hours. The Lion was obliged

TABLE SHOWING PERFORMANCE OF CONTESTING CARS IN BUFFALO CLUB'S RELIABILITY RUN

CLASS 1A RUNABOUTS—\$800 OR UNDER																	
No.	Car	Driver	First Day		Second Day		Third Day		Fourth Day		Total	Road Tests			Tech. Ex.	Penalties Grand Total	
			Road	Tech.	Road	Tech.	Road	Tech.	Road	Tech.		Brake	Clutch	Motor			
4	Flanders	T. R. Bell	0	3	0	0	0	0	23	6	32	0	5	0	5	11	48
21	Ford	G. Morton Wolfe	0	0	0	0	0	5	0	43	48	5	0	5	10	15	73
3	Flanders	B. W. Scott	0	3	0	0	0	0	Skidded and Withdrawn disabled			..	..	..	..	..	1,003
9	Flanders	G. M. Herron	0	0	0	4	0	0	Skidded and Withdrawn disabled			..	..	..	..	..	1,004
CLASS 1A TOURING CARS—\$800 AND UNDER																	
14	Ford	{ N. Wilkinson } { L. J. Kinietz }	0	19	0	3	0	11	0	19	52	19	0	0	19	36	107
CLASS 2A RUNABOUTS—\$801 TO \$1200																	
27	Paige-Detroit	J. E. McFadden	634	314	0	291	0	4	Withdrawn			..	..	..	..	..	2,243
CLASS 3A RUNABOUTS—\$1201 TO \$1600																	
24	Oakland	Howard A. Bauer	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
26	Warren-Detroit	J. D. Mohrhardt	0	6	0	1	0	0	0	0	7	41	0	0	41	31	79
CLASS 3A TOURING CARS—\$1201 TO \$1600																	
2	Maxwell	E. G. Gager	6	12	0	14	0	0	0	3	35	5	0	0	5	11	51
8	Everitt	I. W. Gardham	0	27	0	4	0	23	0	5	59	15	0	0	15	12	86
10	Maxwell	Thomas Costello	0	46	0	58	0	2	0	0	106	5	0	0	5	6	117
11	Schacht	E. W. & C. H. Werick	Hit wagon, damaging axle								Withdrawn		..	..	..	..	1,000
1	Maxwell	C. F. Monroe	Disabled on account of collision								Withdrawn		..	..	..	..	1,000
CLASS 4A TOURING CARS—\$1601 TO \$2000																	
6	Lion	H. L. Blomstrom	0	11	0	8	0	20	47	27	113	0	0	5	5	508	626
CLASS 5A TOURING CARS—\$2001 TO \$3000																	
12	Ohio	E. A. Blaney	0	96	0	3	0	14	Withdrawn			..	..	..	..	..	1,113

to go along at high speed and thus probably aggravated its troubles. The final day nearly brought the car to grief in climbing the two mountains that lay this side of noon control. It is said that a horse has not climbed these hills in forty years, although there is some little travel on the down grade. It took all the Lion's power to get to the top and a big spurt of speed was necessary to make control. There it was discovered that a side-member was cracked, and in that condition the rest of the run was made. The car checked in 47 minutes late and its total penalization was 626, all of which was traceable to a weak spring.

Everitt 8, driven by Joseph Gardham, made a spirited fight for the class trophy in 3A division. Like all the rest of the contestants, the Everitt was crippled by the first day's run. The jolting caused a leaky pump and the engine ran hot. This aggravated carbureter troubles and an accident bent a spindle, causing further penalties in the final brake tests. The car had rather less trouble on the hills than its competitors, but the first day made a clean score impossible for any of the cars and weighed heavily upon the Everitt.

Maxwell 10, driven by Thomas Costello, suffered carbureter trouble the first day after getting the 70-proof gasoline, and was heavily penalized for work done in clearing and adjusting the carbureter. The car showed up well in the finals and but for the incident of the carbureter would have been near the front.

Ford 14, a factory car equipped with a touring body, performed very creditably. It was penalized 107 points all told, and certainly would have been entitled to the class trophy in the 1A touring division if it had carried its full load on all four days.

Through some oversight, however, the car was entered with the runabouts and on the first two days did not carry its quota of passengers required by the rules governing touring cars.

Ford 21, in the runabout class, finished in good style, driven by a member of the Automobile Club of Buffalo, M. W. Wolfe. Its road score was clean for the first two days, but the terrific strain of those periods became manifest in the latter portion of the run and Ford 21 had difficulty in getting home. Chairman Edwards found fifteen loose rivets and brake and motor troubles.

The Warren Detroit 26 was the only other car to finish, and it was severely penalized on technical examination. A spring horn and spring clip were broken and the emergency brake failed to hold by 39 feet. The car made an astonishing showing on the road during the last two days, coming through with a perfect score.

Accidents eliminated most of the other starters. The toughest luck of the tour was experienced by Maxwell 1, driven by Charles F. Munroe, local representative of the United States Motor Company. Last year Mr. Munroe won the Enos trophy in the

WHYS AND WHEREFORES OF THE PENALTIES

2	MAXWELL	Lamp bracket broken.....	5	
		Broken magneto terminal.....	2	
		Leaky gas connection.....	1	
		Lamp bracket loose.....	2	
		1 rivet loose.....	1	
		Foot brake	5	16
4	FLANDERS	2 lamp brackets loose.....	4	
		2 mud apron bolts loose.....	2	
		Broken fender	5	
		Clutch	5	16
6	LION	Broken frame member.....	500	
		Lost mud apron.....	8	
		Cylinder missing	5	513
8	EVERITT	Lamp bracket loose.....	2	
		Broken fender	5	
		2 pan bolts lost.....	4	
		1 pan bolt loose.....	1	
		Emergency brake	15	27
10	MAXWELL	Leaky radiator	1	
		Leaky gasoline line.....	1	
		2 loose rivets in cross member.....	2	
		Loose shock absorber.....	2	
		Foot brake	5	11
14	FORD	Loose muffler	2	
		8 nuts loose.....	8	
		Loose nut on strut rod.....	1	
		Broken strut rod.....	25	
		Emergency brake	19	55
21	FORD	14 rivets loose in motor support.....	14	
		1 rivet loose on cross member.....	1	
		Emergency brake	5	
		Motor missing	5	25
24	OAKLAND	Leaky water connection.....	1	
		2 mud apron bolts loose.....	2	
		2 mud apron rivets loose.....	2	
		1 rivet in cross member loose.....	1	
		Loose fan pulley.....	2	8
26	WARREN-DETROIT	Loose spring horn.....	15	
		Spring clip broken.....	15	
		Muffler wire broken.....	1	
		Foot brake	2	
		Emergency brake	39	72



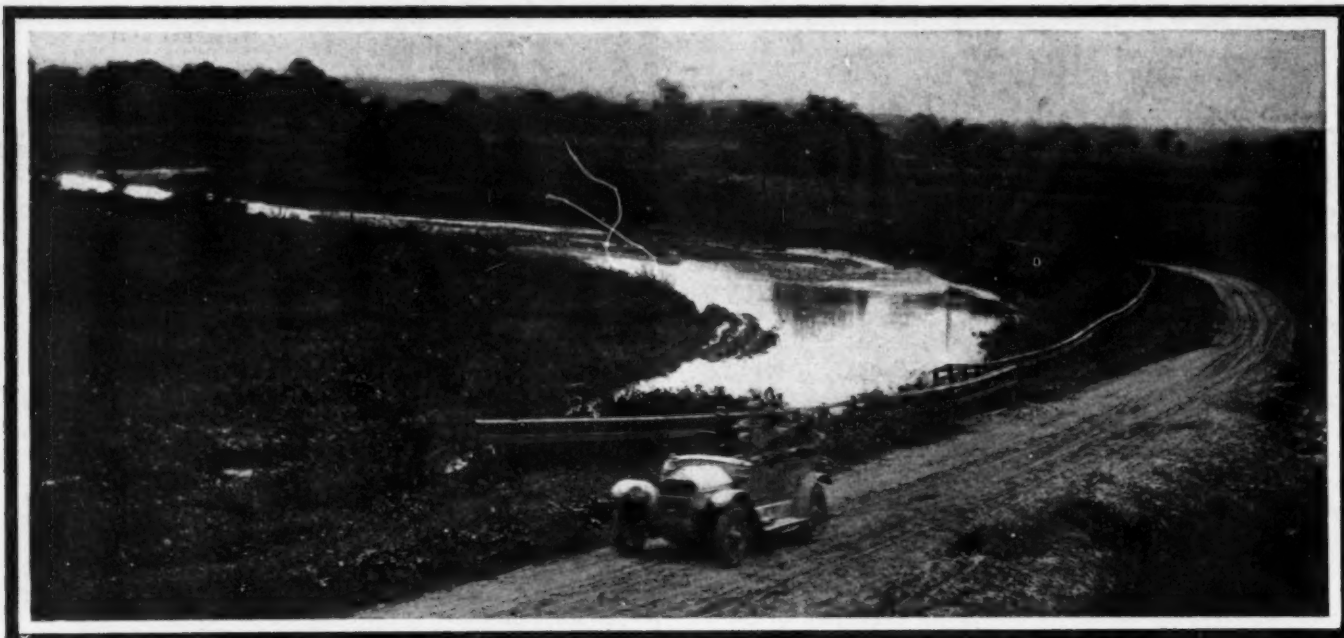
Looking north from the summit of a stiff hill not far from Cattaraugus



Lion 6, class winner, with the pacemaker's flag on third day



Flanders 4, winner in its class and second in the sweepstakes.



Maxwell 10, swinging through one of the level spaces included in the route of the tour's second day, showing character of the roads traversed

tour with a Maxwell car, and this year with one of the new Specials he announced that he was going after it again. The car led the procession to within 50 miles of noon control, when it collided with an Abbott-Detroit racing machine that was accompanying the caravan as a non-contestant. The rear axles of both cars were kinked and the Maxwell was badly disabled. Mr. Munroe was making temporary repairs to get as far as the noon control when the Schacht 11, contesting in the same class, came careering along, striking a hay wagon and rebounding against the crippled Maxwell. When the mud had settled it was found that the axle of the Maxwell was sheered, while the Schacht was put permanently out of commission with a similar injury.

Flanders 3 and 9 succumbed on the fourth day's run. The latter had a clean score the first and third days, and was penalized only 4 points on the second day for a spark-plug adjustment. During the same time its teammate received 3 demerits the first day for taking on water, while on the second and third days its score was clean. But on that fierce fourth day both the little cars withdrew. It was the Clarkesburg mountain that put them out of the running, both skidding from the road and smashing into trees in such position that they could not be repaired or extricated in time to continue. It was a curious fact that the winning Flanders was much more heavily penalized on the road than the pair that withdrew, although a large part of these points came as a result of the last day's run.

Ohio 12 had a stormy journey. It was the biggest and most costly car in the run and consequently had to labor harder on

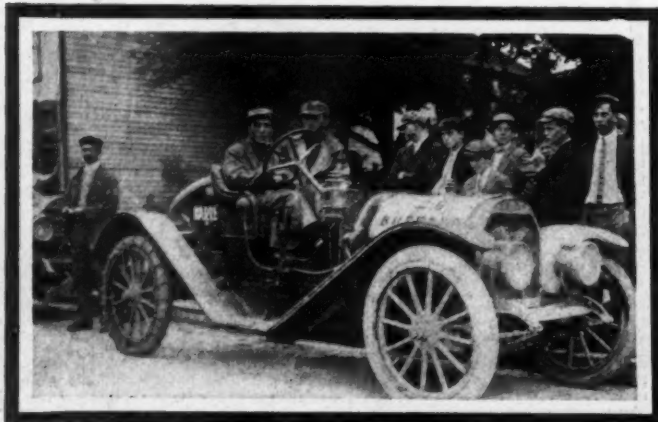
the hills, and in addition was obliged to make a 20-mile-an-hour schedule. The first day brought it 96 demerits for work on clutch, carbureter and in taking on supplies. The route was unfair to such a big car despite the fact that the Pierce-Arrow and Thomas six-cylinder cars were able to negotiate it. It did better the next day, but began to go back rapidly during the tremendously long run of the third day. Boston Hill got the Ohio's scalp after the car had skidded across the road and lay helpless near the foot of the mountain.

Paige-Detroit 27, a rather old model of this make, developed the only downright mechanical defect during the tour. The Paige was equipped with differential pinions of unequal hardness. This resulted in disablement on the first day which rolled up an imposing number of demerits against the car. Nevertheless, McFadden worked industriously on the car at night and was ready to start the next morning, not having rested for a minute. The car was given nearly 1,000 points, and the second day produced 291 more. The third day was better and the entrant had hopes of finishing, when Clarkesburg Mountain intervened and the Paige came back by freight.

It was a fierce contest over roads that would have furnished a tremendous test of stock automobiles under the best of weather conditions. But such conditions did not obtain. A deluge swept over the northern half of New York State on Tuesday night, and when the cars were called to the line at 6:30 Wednesday morning it was freely predicted that none would make night control within three hours of schedule. The course led to Buffalo Hill by a winding way. There is a sharp turn approaching the heavy grade and the cars had to proceed rather leisurely in the early part of the ascent. The hill is of flint, streaked with seams of blue clay, and in dry weather is simply a very steep, smooth mountain road over the hardest kind of bed. But on Wednesday it was different. The rain had dissolved considerable clay above the road and had washed it down upon the flint, so that when the cars approached the slippery bed had been covered to the depth of half an inch with this perfect lubricating substance. Chains were useless and all the cars fought it out on a basis of main strength. That they arrived at the top is a speaking testimony of the power of the modern stock automobile.

Beyond the hill were more hills, some of them quite as steep as Buffalo and some much rougher, but none like it. It was Buffalo that made clean scores impossible for such automobiles as contested, or, in fact, any others.

The first day's run was 207 miles, and four more were added by a detour. They were such miles as only Dai H. Lewis could select when he was in a selecting humor, and, to make



Warren-Detroit 26, which made a gallant showing and finished

the situation worse, they were soggy and slippery and badly cut up in spots.

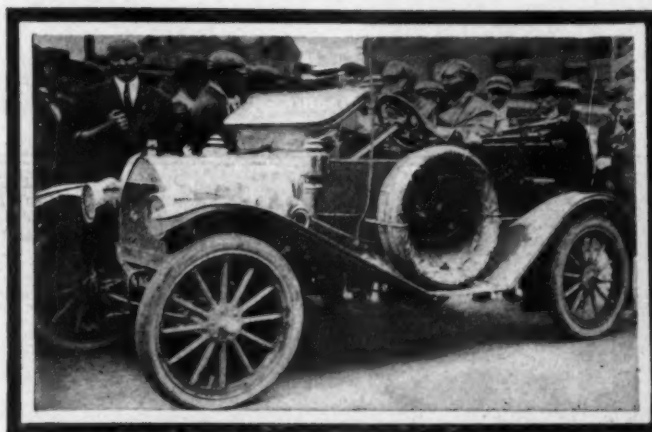
The second day proved to be the easiest of the tour, which is not saying much. The route was only 200 miles long, which required the Class 1A cars to travel 12 1-2 hours.

The third day was through some of the most magnificent road scenery in the world. From Buffalo to Bradford, Pa., the way was somewhat similar to that covered on the other days, but from Bradford to Warren, Pa., the landscapes deserve the attention of some master painter. The Automobile Clubs of Bradford and Warren take a just pride in the roads and see that they are maintained, but even with just ordinary roads the trip would be gorgeous.

But that is about all. From Warren back to Buffalo it was a grind and the day wound up with a mileage of 222. This was occasioned by two bridges being washed out. The first of these necessitated a change in route through the Iroquois reservation where the roads were trying, and the second brought the official pacemaker to grief. The Pierce-Arrow car that carried the referee stuck in the mud near Levant and the stiff wind that sprung up later in the day caused the confetti to be blown to the right side of a long stretch of good pike, thus leading the Lion, which had taken up the pacemaking, to make a wrong turn. All the cars followed, and as a result a big addition to the day's run was made.

The last day was the terror of the four. Weakened and racked by the strenuousness of the foregoing days, four cars bowed to the inevitable and retired during the morning.

The reason lay in the fact that Boston Hill and Clarkesburg Mountain are two of the stiffest ascents ever presented to automobiles for negotiation. Boston Hill came first on the itinerary. In the middle of summer, when no rain has fallen for a couple of weeks, Boston Hill might be used as a sort of ultimate test for hill climbing by automobile manufacturers. Few would even try to climb Clarkesburg. Each is long and 30 per cent. grades are not uncommon. In fact, several of the veteran drivers declared that the maximum grades were steeper. Over each of these hills is an arch of trees and the roadway, which is sometimes used for horse travel on the down grade only, is composed of blue clay. The tree arches serve to keep off the sun and keep in the moisture, and when the head of the procession reached the beginning of the Boston Hill there was no more traction to be had than there would be on the side of a house. Some tried it on low gear and others backed up the grade. Four cars failed to get up at all.



Ford "21," which looked like a winner in Class 1A until the final day of the tour

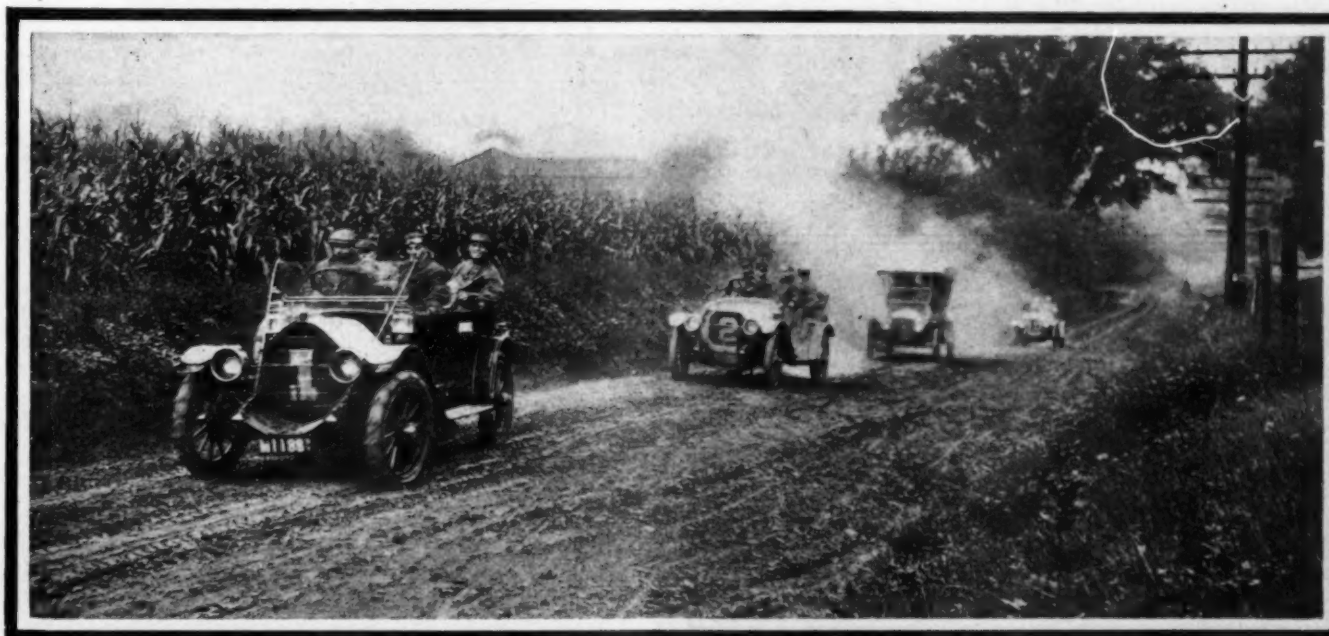
The clutch test was passed in good shape by all the cars, a few penalties of 5 points each being imposed.

Then came the final technical inspection by Chairman Edwards. It was of the fine-tooth comb variety and went clear to the vitals of all the cars.

It was a magnificent tribute to the sturdiness of stock automobiles of modern manufacture that as many as nine cars finished the run and that only six fell by the wayside.

SOME OF THE DETAILS OF THE CONTESTANTS

Class 1A, Runabouts					
No.	Car.	Motor.	Tires.	Carburetor	Ignition
3	Flanders	3½ by 3½	M. and W.	Flanders	Splitdorf
4	Flanders	3½ by 3½	M. and W.	Flanders	Splitdorf
9	Flanders	3½ by 3½	M. and W.	Flanders	Splitdorf
21	Ford	3½ by 4	Diamond	King	Ford
Class 1A, Touring					
14	Ford	3½ by 4	Diamond	King	Ford
Class 2A, Runabouts					
27	Paige-Detroit	3½ by 4	Diamond	Mayer	Bosch
Class 3A, Runabouts					
24	Oakland	4½ by 5	Goodyear	Schebler	Remy
26	Warren Detroit	4 by 4½	Diamond	McCord	Voltamagneto
Class 3A, Touring					
1	Maxwell	4½ by 5½	Ajax	Stromberg	Splitdorf
2	Maxwell	4½ by 5½	Ajax	Stromberg	Splitdorf
10	Maxwell	4½ by 5½	Ajax	Stromberg	Splitdorf
8	Everitt	4 by 4½	Diamond	Metzger	Bosch
11	Schacht	4 5-16 by 5	Diamond	Schebler	Bosch
Class 4A, Touring					
6	Lion	4½ by 5	Firestone	Stromberg	Splitdorf
Class 5A, Touring					
12	Ohio	4½ by 4½	Goodrich	Schebler	Splitdorf



Maxwell Trio and Ford touring car in close order during the early part of the first day's running after passing East Aurora

National Stars at Port Jefferson



National 17, which proved the winner of two events on Saturday, making the severe turn at the elbow; Donald Herr driving

RIVALRY, friendly but intense, marked the second annual hill-climbing contest of the Automobile Club of Port Jefferson. The hill, a measured 2000-foot course, with a 400-foot flying start, was lined with the residents of Port Jefferson and the vicinity, who had come to view the contests in spite of the weather conditions—rain threatening all the afternoon. Additional interest was given the well-contested matches by an elbow located at about the center of the course, and of such an angle that the approaching cars were concealed from those who clustered about the finish line until they had rounded the bend and were on the final stretch. The manipulation of the curve proved to be a great factor in determining the time of the climb, for in many instances where the time of two rival cars was close it was noticed that the winner proved almost invariably to be the one who had made the better turn.

The gradation of the hill ranges from 6 to 16 per cent. At the start there is a sharp rise for about 800 feet; the slope then becomes easier until the bend is reached, at which point it attains the maximum. There were very few instances in which the contestants dropped to second speed, and when they did they were in all cases badly defeated. The changes of gear were made just above the elbow by the smaller cars.

No accidents of any consequence marred the afternoon's sport, the nearest approach to a disaster being when the National car No. 17 went through a hedge fence after having passed the finish line and while still traveling at a rapid rate. The car was checked just before reaching the steps of the veranda of a private residence and was backed out without any damage hav-

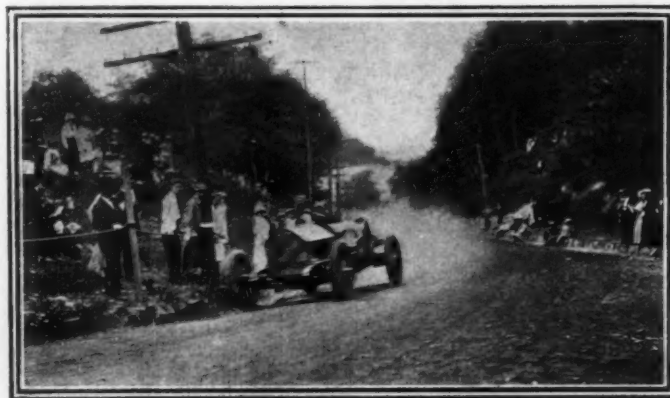
ing been done except that to the shrubbery. The course was kept clear during the entire race by means of specially appointed police.

The events for small cars opened the races, the first car coming up the hill being one of the Fords. After this the different events were intermingled one with another, thus furnishing a variety. The first two events for stock cars were won by Ford cars, the second places in both these events likewise going to the Fords, four of which were entered by Messrs. Bishop, McCormick & Bishop. The Krit in the first event was the only car during the race whose official time stood over one minute, although there were several cars which went over this time in one of the two attempts which were allowed. The Krit car did not take a second trial in this event.

The National cars distinguished themselves by winning all the large events of the day, including the free-for-all for the beautiful Ardencraig trophy, besides the races in their class for sell-

PORT JEFFERSON HILL CLIMB SUMMARIES

Gasoline Stock Cars, \$800 or Under			
No.	Car.	Driver	Time
13	Ford	Bishop	44.88
12	Ford	Bishop	55.27
42	Krit	Rud. Wehr	1:37.87
Gasoline Stock Cars, \$801 to \$1,200			
40	Ford	Moe Lawson	43.06
10	Ford	McCormick	46.61
19	Paige-Detroit	J. Craig	48.71
Gasoline Stock Cars, \$1,201 to \$1,600			
31	Lion	F. S. Apgar	29.22
24	Correja	Joe Taylor	33.95
Gasoline Stock Cars, \$1,601 to \$2,000			
2	Corbin	H. B. Tucker	32.90
8	Cole	Walter Blair	43.55
36	Velie	A. M. Campbell	46.25
21	Colby	J. Craig	47.95
Gasoline Stock Cars, \$2,001 to \$3,000			
14	National	Donald Herr	*24.45
22	Mercer	Hughie Hughes	25.40
37	Mercer	Clifford Griswold	28.09
Free-for-All, Ardencraig Trophy			
17	National	Donald Herr	21.31
15	Knox	I. J. Coffey	21.57
1	Pope-Hartford Hummer	Louis A. Disbrow	23.87
16	Knox	Fred Belcher	24.04
27	Fiat "90"	R. W. Stuard	24.90
22	Mercer	Hughie Hughes	27.09
6	Mercedes-Simplex	D. M. Bellman	28.27
Cars of 161 to 230 Cubic Inches Piston Disp.			
31	Lion	W. Apgar	27.57
60	Krit	W. Jones	36.20
51	Jackson	S. C. Hutchinson	28.26
28	Courier	Wm. Davis	42.24



The Mercer car driven by Hughie Hughes, winning the event for its class in piston displacement

Record for the Hill Still Stands



The Ford T, which finished first in its class for selling price

The Lion 40, driven by Apgar, which finished first in two events

ing price and piston displacement. The amateur event, won by the National 14, driven by W. J. Fallon, was protested by E. B. Hawkins, a post-entry to this race. The protest was officially made in writing at the termination of the race, on the ground that the National car was not owned by the entrant for the required thirty days before the race. This matter will be decided later by the A. A. A., under whose auspices and rules the race was held.

The third event consisted of but two entries, a Lion car which won the race and a Correja which lost by about four seconds. Both these cars climbed the hill in far less time than that in which the climb was made last year by the winner of the corresponding event. In fact in every case except the free-for-all and that of stock cars selling from \$1,601 to \$2,000 last year's time was considerably bettered.

The fourth event was won by the Corbin, which had a margin of about ten seconds on its nearest rival, the Cole driven by Walter Blair. The Corbin was driven by the owner, H. B. Tucker. In this event the Velie car very nearly stalled its motor on the first attempt at the bend, taking over a minute and fifteen

seconds to climb the hill. On the second attempt, however, the Velie made the climb in 46.25 seconds, taking third place in the race.

Very fine time was made in the fifth event, the National No. 14, driven by Herr, proving to be the winner by less than one second over the Mercer driven by Hughes. The Mercer did not take the bend as quickly as the National, losing considerable time on the skid. The National car held closer to the crest of the road, making a much prettier turn and saving time.

The stock car events on the card were most carefully observed by the automobile owners and prospective owners in the assembled crowd and while the representatives of these classes did not make as much noise as the speed creations that competed in the free-for-alls, their performances attracted considerable discriminating attention.

The free-for-all excited the liveliest interest. The assembled crowd wanted thrills and they got them in this race. The first car, a Mercedes-Simplex with chain-drive, thundered up the hill, seeming to gain speed every instant. Just as it reached the finish line it swerved into the gutter, breaking the timing wire and sending a shower of pebbles about the judges' stand. No damage was done the car, however, and the excitement soon quieted down while the necessary repairs were being made. It was in this race that the best time was made. The National car climbed the hill in 21.31 seconds, which was the fastest time of the day. This did not upset the record made last year by Ralph de Palma in a Fiat car as his time was 20.48 seconds.

When the other drivers learned the time made by Donald Herr in the National a number of them resolved to take advantage of the second opportunity to which they were entitled under the rules. The Mercedes-Simplex was among those which tried the

PORT JEFFERSON HILL CLIMB SUMMARIES

Cars of 231 to 300 Cubic Inches Piston Disp.

22	Mercer	H. Hughes	25.55
34	Corbin	Al. Maisonville	27.32
9	Cole	Ernest Heyrel	29.12
5	Staver-Chicago	Fred. Wright	32.64
24	Correja	Joe Taylor	32.76
19	Paige-Detroit	J. Craig	47.07

Cars of 301 to 450 Cubic Inches Piston Disp.

14	National	Donald Herr	23.19
1	Pope-Hartford Hummer	Fred Belcher	24.79
16	Knox	L. A. Disbrow	24.33
31	Lion	W. Apgar	33.14

Cars of 451 to 600 Cubic Inches Piston Disp.

17	National	Donald Herr	21.37
15	Knox	J. J. Coffey	21.90
16	Knox	Fred Belcher	24.52
6	Mercedes-Simplex	D. M. Beilman	28.22
5	Staver-Chicago	Clifford Gresivold	35.42

For Amateurs, Cars Selling Up to \$1,200

2	Corbin	H. B. Ducker	34.56
40	Ford	Moe Lawson	41.80

For Amateurs, Cars Selling for \$2,001 or Over

14	National	W. J. Fallon	*25.30
52	Knox	E. B. Hawkins	34.23
56	Speedwell	R. C. Vandeventer	39.97
23	Acme	Wm. R. Brass	55.55

For Amateurs, Port Jefferson Owners

26	Buick	Charles Bishop	33.43
5	Staver-Chicago	Clifford Gresivold	35.42
53	Pierce-Arrow	Donald Alvord	35.54
28	Cononir	Wm. Davis	41.52
4	Buick	R. Schmeltz	51.02

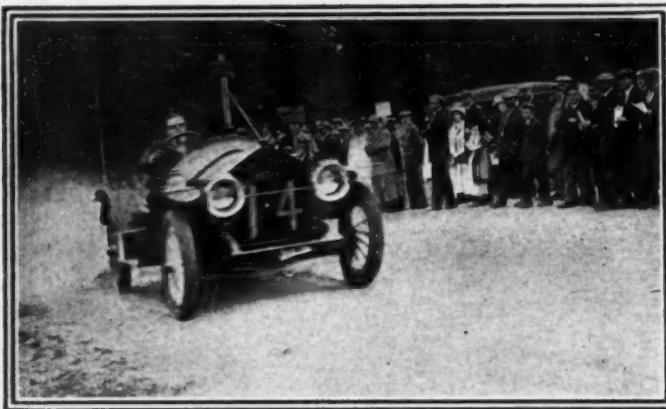
Special Event, Match Race

3	Metz	Wm. Buchanan	38.50
13	Ford	C. M. Bishop	46.63

*Protested.



The Corbin car driven by Maisonville, which finished second in its class, approaching the starting line



National car which will win three events if protest is not allowed

second climb, and it again distinguished itself by scraping the gutter and carrying away the finishing wire. After having torn down the wire the car continued gaily on its way, concluding its performance by very nearly ramming a touring car filled with innocent spectators. The National's time was not touched and stood as the day's record, and with it went the possession of the Ardenraig Trophy.

The other races which were graded by piston displacement were won by the Lion car, driven by F. S. Apgar; Mercer, driven by Hughie Hughes, and National by Donald Herr (two races).

The amateur events, open only to residents of Port Jefferson and vicinity, excited great interest, and the attempts of the rival drivers to better each other's time were cheered by their neighbors who were gathered on the hillside. It was in the amateur race for cars selling over \$2,001 that the protest was entered by E. B. Hawkins, who is postmaster of Huntington, a near-by town, against the National car driven by W. J. Fallon, the promoter of the race. Mr. Hawkins was second in his Knox.

A special event between a Ford and Metz 22 went to the latter rather handily.

The officials were as follows: Racing Committee, W. J. Fallon, A. O. Smith, G. E. Darling; Manager Parking Space, Paul B. Franklin; A. A. A. Representative, Frank G. Webb; Referee, A. R. Pardington; Judges, D. M. Gerard, Willard Bayles, Dayton Hedgess, Luther Chambers, C. B. Zabriskie, Carl S. Buer; Clerks of Course, W. J. Fallon, Tom Fallon, Arthur Burns; Starter, E. C. McShane; Assistant Starters, George Robertson, Jack E. Connell; Chief Timers, William Poertner, A. G. Inderreiden; Announcers, H. J. Fenn, H. J. Willetts, Will Robins, Jacob S. Dreyer; Technical Committee, A. F. Comacho (Chairman), Ben T. West, Henry Souther, A. F. Sammiss, J. H. Downer, F. C. Griswold, A. N. Randall, Thos. Fanning; Scorers, Steve Fallon, Leslie Davis, Chester Darling, Archie Graham, William S. Lawson; Entry Committee, William J. Fallon, George Darling. The timing was done by an electric trip wire and telephone made by Warner Instrument Company.

The race was a success in every way and will no doubt be repeated next year by the Automobile Club of Port Jefferson.

Speed Rates of Port Jefferson Winners

Following is a table of speed rates made by the winning cars in each of the fourteen events of the Port Jefferson hill climb:

Event.	Car.	Time.	M. P. H.
1	Ford	44.83	31.1
2	Ford	43.06	31.7
3	Lion	29.22	46.7
4	Corbin	32.90	41.4
5	National	24.45	55.8
8	National	21.31	64.0
9	Lion	27.57	49.6
10	Mercer	25.55	53.3
11	National	23.19	58.8
12	National	21.37	63.9
14	Corbin	34.56	39.5
15	National	25.30	53.9
16	Buick	33.43	40.7
17	Metz	39.38	34.7



Belcher receiving starting instructions while seated in his Knox car

Dealers' Week in Detroit

Studebaker and Ford Agents in Conference

DETROIT, MICH., Sept. 11—Dealers have been pouring into Detroit in a steady stream the past week, and the migration continues without any indication of waning interest or enthusiasm on the part of those who are doing the entertaining. This morning a delegation of nearly 200 E-M-F dealers from Texas and Oklahoma arrived in one of the Studebaker Corporation's specials for a two days' visit, and they will be followed, later in the week, by the Kansas City delegation.

More than 400 dealers were entertained by the Studebaker Corporation and the Ford Motor Co., alone, last week. The Ford visitors included dealers from Wisconsin and Iowa. The Badger State contingent was accompanied by six Milwaukee newspaper men. The visitors were entertained with a luncheon at the Log Cabin Inn, a spin to Grosse Pointe and a dinner at the Hotel Tuller in the evening.

Thus it has been one continual round of handshaking, explaining and entertaining, with luncheons every day and banquets every night. In addition to establishing a stronger personal relation between manufacturer and dealer, these visits have enabled the dealers to study the details of construction at first hand, and this knowledge, naturally, is bound to be a valuable asset in the selling of cars.

A party of 300 leading business men of the Upper Peninsula were the guests of the Detroit Board of Commerce, Wednesday and Thursday of last week, and were taken through the Packard and Chalmers plants, Thursday morning. The visitors were received by Lee Counselman, vice-president and general manager of the company, and they were escorted through the plant by officers and heads of departments. Each was presented with a souvenir in the form of a Chalmers watch fob.

The Cartecar Company is now occupying its handsome new building at Woodward and Hendrie avenues, which is a marked improvement over the company's old show rooms.

Harry Paxton and A. A. Crumley, both of whom are well known in local motor car circles, will go to Philadelphia as eastern distributors for the Warren Motor Car Co. They will do business under the style of the Paxton-Crumley Auto Co.

All doubt as to the Flanders 20, which recently won the St. Louis-Kansas City reliability run, being a stock car has been removed. George E. Lane, local representative of the American Automobile Association, made a thorough inspection of the car last week after personally breaking the seals of the freight car in which the machine had been shipped back to Detroit, and wired Chairman Butler, of the contest board, that the car was stock in every particular.

The McCord Manufacturing Co., whose business has grown to enormous proportions since the concern's removal to Detroit, has just let contracts for a one-story brick addition to its plant on the East Grand Boulevard.



Cars assembled near the starting line in Port Jefferson awaiting their turns to participate in the events

No Records at Old Orchard

Course Was Found to Be Short

OLD ORCHARD, ME., Sept. 6—The feature of the three-day beach meet here, which closed this afternoon, was the bitter struggle for the honors in the 100-mile race between John Rutherford, in a National car, and Louis Disbrow, driving a Pope-Hartford. The former won the long grind in the fast time of 98:00 4-5, finishing 1 minute 17 1-5 seconds ahead of his rival. Had it not been necessary for Disbrow to stop during his fifty-first mile to replace a lost tire—an operation that cost him fully three minutes and a half—it is quite probable that the finish would have been of the blanket variety.

The National took the lead at the start, but in the tenth mile the Pope-Hartford swung into the lead, which it held until Disbrow came to grief in the fifty-first mile. Rutherford led from that point to the finish, although the Pope-Hartford cut a trifle off its opponent's advantage with each circuit. The time of the two contenders for each 25 miles was as follows:

Miles.	25	50	75	100
National	22:36	45:12	65:35	98:00 4-5
Pope-Hartford	22:15	44:28	69:38	99:18

The time would have been much faster had it not been for the incoming tide, which drove the contestants farther up on the beach, where the going was much too soft for the fast work which had characterized the earlier stages of the race.

Besides the National and the Pope-Hartford there were four other starters—Pope-Hartford, driven by C. L. Bowler; Inter-State, Harry Endicott; Buick, C. G. Jessup, and Jackson, Harry Cobe. Bowler finished third in 109:37, and Endicott fourth in 110:37, the former getting the show position despite the fact that he covered the last few miles of the race on three tires. Jessup and Cobe failed to finish.

The 25-mile free-for-all was a sop to Disbrow, however, for he nosed out Rutherford by the small margin of one second, covering the distance in 15:25. The Jessup Buick finished third, followed by Bowler's Pope-Hartford and Endicott's Inter-State.

A match race at 10 miles between an Inter-State, driven by Neilson, and a Cole 30, piloted by Habich, resulted in a win for the former in 7:56 1-5, his opponent finishing one-fifth of a second behind.

In a mile exhibition against time a Stanley Steamer, driven by L. F. N. Baldwin, negotiated the distance in 39 seconds, lowering his best previous effort by an even second. A 5-mile trial by Disbrow in his Pope-Hartford was clocked in 3:58. The summaries are in the following column.

Regarding the remarkable times made by the contesting cars, and the early claim for records which were made as a result thereof, it has developed that such claims will not stand, owing to the wrong placing of the marker designating the easterly limit of the supposed 2 1-2-mile course. The official to whom was assigned the task of placing the marker fell shy of the required

distance by a considerable number of feet. Although the difference was slight it was sufficient to nullify the possibility of official recognition of any records that may have been made.

Arrangements have been made for races to be held at the beach in July of next year. Three thousand dollars in prizes has already been posted and there will be a longer and a better list of entries even than there was this year.

Automobile a Feature of Country Fairs

MORRISON, ILL., Sept. 9—That the country fairs are becoming more or less automobile shows for the farmers was shown this week at the annual Morrison Fair, the big western Illinois State fair.

In the three days there were counted from 750 to 800 visiting cars each day and the booths and tents of the various exhibitors were crowded each day with farmers and others anxious to see what the new ideas would be for the coming season.

Each exhibitor had from one to three cars on the grounds either in the open or in tents. The Buick showed three new cars, including a truck which was demonstrated to the farmers; Regal three cars, including the new underslung; Overland, Oakland, Cadillac, Reo and Ford, one car each.

One of the most interesting features of the show was the loading of the Buick regular 1,800 lb. delivery truck with 32 men, places being provided for by means of planks, and making two laps of the half-mile track in excellent time. Sales reported showed that each exhibitor was well pleased with the show and that a great many future sales would undoubtedly result from the exhibition.

Last Day's Summaries at Old Orchard

25-Mile Free-for-All		
Car	Driver	Time.
1. Pope-Hartford	Louis Disbrow	15:25
2. National	John Rutherford	15:26
3. Buick	G. C. Jessup	15:26 1/2
4. Pope-Hartford	C. L. Bowler	15:36 1/2
5. Inter-State	Harry Endicott	15:39 1/2
Match Race—10 Miles		
1. Inter-State	V. A. Neilson	7:56 1/5
2. Cole "30"	H. J. Habich	7:56 3/4
One Mile Exhibition Against Time		
Stanley Steamer	L. F. N. Baldwin	:40
Five Mile Exhibition Against Time		
Pope-Hartford X	Louis Disbrow	3:58
50-Mile Free-for-All		
1. National	John M. Rutherford	30:06 1/2
2. Pope-Hartford	Louis Disbrow	30:13 1/2
3. Pope-Hartford	C. L. Bowler	30:40 1/2
4. Inter-State	Harry Endicott	.....
5. Jackson Flyer	Harry Cobe	.....
100-Mile Free-for-All		
1. National	John Rutherford	98:00 4-5
2. Pope-Hartford	Louis Disbrow	99:18
3. Pope-Hartford	C. L. Bowler	109:37
4. Interstate	Harry Endicott	110:37
5. Buick	G. C. Jessup	.....
6. Jackson Flyer	Harry Cobe	.....



Fiat, No. 9, Hearne driver, which captured first place in the race for the Cincinnati trophy



Eddie Hearne, who piloted the winning car in the big race

Cole and Fiat Feature Fern Bank

CINCINNATI, O., Sept. 10—Cincinnati's first attempt at road races was carried through very successfully Saturday as a climax to the week's celebration of the opening of the Fern Bank dam across the Ohio River. The races

in starting and after sharp work by both driver and mechanic the car had covered 20 feet in the first fifteen minutes and was withdrawn. It was found when the car was examined later that a pin or key in the transmission had caught.

RESULTS OF THE RACE FOR THE CINCINNATI TROPHY

No.	Car.	Driver.	Bore.	Stroke.	Lap No.	1	2	3	4	5	6	7	8
9	FIAT	Hearne	5½	5	Elapsed time	8:33	17:02	25:28	33:46	42:10	50:29	59:01	67:11
					Lap time		8:29	8:26	8:18	8:24	8:19	8:32	8:10
3	COLE	Jenkins	4½	4½	Elapsed time	10:56	19:47	28:28	36:56	45:26	53:48	62:09	70:30
					Lap time		8:51	8:41	8:28	8:30	8:22	8:21	8:21
10	WESTCOTT	Knight	4½	5¼	Elapsed time	9:01	17:56	26:55	36:00	45:01	53:57	62:52	71:51
					Lap time		8:55	8:59	9:05	9:01	8:56	8:55	8:59
4	OHIO	Matthews	4½ ₃₂	4¾	Elapsed time	9:38	18:56	28:34	37:56	47:17	56:21	65:46	80:41
					Lap time		9:18	9:38	9:22	9:21	9:04	9:25	14:55
6	CINO	Gilchrist	4¾	5	Elapsed time	10:34	19:00	28:48	38:26	47:57	57:12	66:29	75:59
					Lap time		9:26	9:48	9:38	9:31	9:15	9:17	9:30
5	OHIO	Thatcher	4½ ₃₂	4¾	Elapsed time	8:55	18:08	27:53	37:12	46:22	55:39	64:56	74:12
					Lap time		9:13	9:45	9:19	9:10	9:17	9:17	9:16
2	SCHACHT	Jeffkins	4¾	5	Elapsed time	11:44	20:43	30:32	40:06	49:27	58:50	68:11	77:28
					Lap time		8:59	9:49	9:34	9:21	9:23	9:21	9:17
7	CINO	Burke	4¾	5	Elapsed time	8:52	17:44	26:46	35:03	Withdrawn, broken con-			
					Lap time		8:52	9:02	8:17				
8	CINO	Raimey	4¾	5	Elapsed time	Withdrawn, turned over							
					Lap time								
11	STUTZ	Anderson	4¾	5½	Elapsed time	Withdrawn.							
					Lap time								
20	COLBY	Pearce	4¾	5¼	Elapsed time	Withdrawn, broken wheel.							
					Lap time								

were run over the Silverton-Blue Ash-Montgomery course near the town of Rossmoyne, about 15 miles out of the city. The course was a triangular one, with one very sharp turn. The length was 7.9 miles and the road none too well prepared for fast work.

Of the two races, which were run simultaneously, the big one was for a distance of 200 miles and the other was 150 miles. Eddie Hearne in the Fiat carried off the honors in the 200-mile event, winning the Cincinnati trophy at an average speed of 57.5 miles per hour. Jenkins in the Cole took second in this race and first in the 150-mile event, to which the Fiat was not eligible. Second place in the smaller race, for the Hamilton County trophy, was made by Thatcher in the Ohio.

All the cars but the Fiat, Stutz and Westcott, competed in both races, the relative position at the end of the nineteenth lap determining the standing in the 150-mile event.

Of the twelve entries for the two races all appeared at the starting point, but Mortimer Roberts in the Abbott-Detroit which held No. 1 showed up at the very last minute. The seating arrangement of the Abbott had been changed so that the mechanic was immediately behind the driver and Technical Executive F. E. Edwards refused to allow the experiment.

Things commenced to happen before all the cars had gotten away. The No. 11 Stutz, driven by Gil Anderson, had trouble

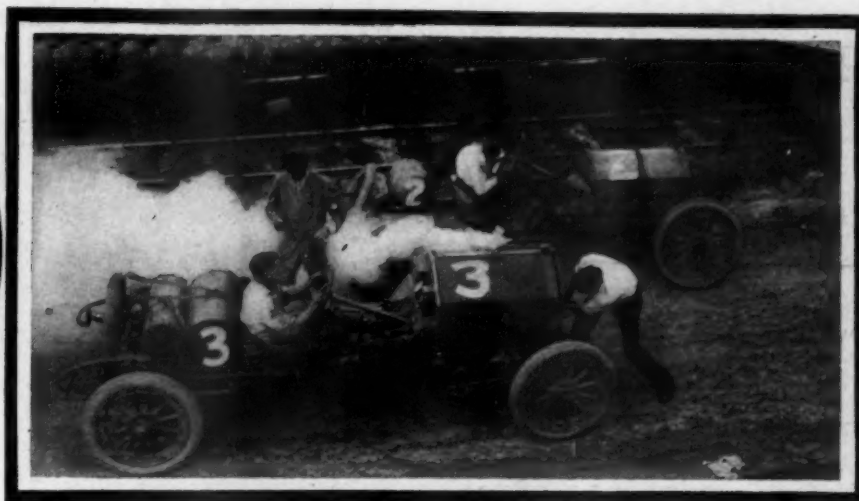
Two other cars met with disaster in the first lap. The first occurred when Raimey in the Cino No. 8 threw a tire and turned over near Blue Ash. Raimey suffered a slightly sprained wrist and the car was out of the race. Then the No. 20 Colby



Westcott, No. 10, Harry Knight driver, which finished third in the 200-mile race



Jenkins, who drove the Cole to a win in the small car race and second in the big event



Cole 30, driven by Jenkins, which after winning 150-mile race, went on and captured second in the 200-mile

went out with a broken wheel, Pearce, the driver, getting slightly scratched up in the wreck.

In the fifth lap the No. 7 Cino, with Andy Burke at the wheel, who had held his position right behind Hearne and was leading in the Hamilton County trophy race, lost its brilliant chance by breaking a connecting rod. The last accident was when the Schacht, driven by Jeffkins, was wrecked in its eightieth mile. A tire blew out on the left rear wheel where the road was soft

time, finishing 11 minutes ahead of the Cole. Burke, in the Cino, followed Hearne for the first four laps when he was put out from a broken connecting rod. Jenkins, in the Cole, was in seventh place for the first two laps. Then he commenced to spurt, passing Matthews, in the Ohio, on the third lap, and Harry Knight, in the Westcott, on the fifth lap. This put him into second place for the big race and first place in the little race, which position he held to the finish. In addition to his victory

FOR NON-STOCK CARS UNDER 600 INCHES, 200 MILES

9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
75:39	84:08	91:22	99:24	107:28	115:38	123:55	132:04	140:39	149:27	159:04	167:31	175:59	184:30	192:52	200:45	209:03.20
8:28	8:29	7:14	8:02	8:04	8:10	8:17	8:09	8:35	8:48	9:37	8:27	8:28	8:31	8:22	7:53	8:18.20
78:50	87:12	94:25	102:37	110:53	120:00	128:36	136:47	145:19	154:01	166:29	177:26	186:13	194:38	203:05	211:38	220:04.27
8:20	8:22	7:13	8:12	8:10	9:07	8:36	8:11	8:32	7:42	12:29	10:56	8:47	8:25	8:27	8:33	8:26.27
80:32	88:23	97:14	105:56	114:34	123:11	131:45	153:44	164:56	173:29	182:03	190:36	199:06	207:34	216:03	224:39	233:38.75
8:41	7:51	8:51	8:42	8:38	8:37	8:34	21:59	11:12	8:33	8:34	8:33	8:30	8:28	8:59	8:36	8:59.25
90:42	100:08	109:20	118:39	127:52	137:07	146:38	155:47	164:42	173:34	182:22	191:14	200:04	209:22	218:21	227:19	236:11.58
10:01	9:26	9:12	9:17	9:13	9:15	9:31	9:09	8:55	8:52	8:48	8:52	8:50	9:18	8:51	8:58	9:00.58
85:37	93:56	103:22	112:50	122:29	132:00	141:49	151:24	161:00	170:45	180:29	190:05	204:59	214:22	223:47	233:06	241:59.60
9:38	10:19	9:26	9:28	9:39	9:31	9:49	9:35	9:36	9:45	9:44	9:36	14:54	9:23	9:25	9:19	8:53.60
83:28	91:38	100:46	109:56	118:39	127:35	136:11	145:18	154:27	162:55	171:19	Withdrawn, transmission trouble.					
9:16	8:10	9:08	9:10	8:43	8:56	8:44	8:59	9:09	8:28	8:24						

Withdrawn, wrecked.
necting rod.

and the wheel broke. Both driver and mechanic were thrown out and Wilkie Meyers, the mechanic, received a cut on the leg.

From the beginning of the race Eddie Hearne in the big Fiat had everything his own way and was not really pushed at any



Ohio, No. 5, driven by Charles Thatcher, second in the small-car race

Jenkins had the honor of making the fastest lap of the day, negotiating the 7.9 miles in 7:13, an average speed of 65.7 miles per hour. Knight, in a Westcott, finished the first lap in the fourth place, then climbed up to third, and the accident to Burke put Knight into second place for one lap. Jenkins' spurt left Knight back in the third place until he dropped from third to sixth in the sixteenth lap, during a stop for oil, water and gasoline; then he climbed up to fourth place and the withdrawal of Thatcher, in the Ohio, put him into third place.

No. 6 Cino, with Gilchrist at the wheel, started out in the fifth place, dropped back to seventh in the third, and then was boosted to the fourth place by the withdrawal of the Schacht and the No. 7 Cino. In the sixteenth lap Gilchrist passed Knight and landed in fourth place, but was repassed by both Knight and Matthews in the next lap and finished in fifth place.

In the little race, which was decided by the position of the cars at the end of the nineteenth lap, neither the Fiat nor the Westcott was eligible, so that Jenkins, in the Cole, was leading from the fifth lap, and was closely followed by Thatcher, in the Ohio, throughout the race. Gilchrist, in the Cino, ran in third place nearly all the way. Thatcher immediately withdrew at the completion of the nineteenth lap on account of clutch trouble, declining to attempt to finish in the big race.

Fast Time at Hamline

MINNEAPOLIS, MINN., Sept. 11—Burman enjoyed a field day at the State fair automobile racing matinee Saturday. He made the fastest mile of the afternoon, 50 seconds flat, on a far from safe and sane track and was successful in defending his possession of the Remy brassard.

Heavy rains all week had placed the track in a treacherous condition. The surface appeared to be fairly dry, but below the top coating the fine soil of the track was soft and slippery. Soon after 8 o'clock in the morning the gates were thrown open, and the police rushed every motor car coming into the grounds out upon the track. Then began a long, tiresome milling of motors around the mile loop. Harrows stirred the soft mud and the process continued until nearly noon, when gasoline tractors from the exhibits of farm machinery were called into play to pull heavy drags. The surface of the track was literally pounded down by the multiple mileage of many machines. The stretches were in fair condition by noon, but the turns never dried out.

One feature of the meet which interested the spectators was an exhibition of speed driving with a tire change, as such changes are made in the big speed events, by Ray Harroun with the Marmon Wasp. This change, the taking off of a front tire and the replacing with a new tire, was accomplished in about 50 seconds. Harroun then drove out the remaining mile, making the three miles and the tire change in a total elapsed time of 4:45.

Charley Nyquist, in a Buick, won the second event, a 5-mile race, the time being 5:44 flat. Stubborn fighting marked the 15-mile race, one of the prettiest events of the day. In this event the Staver-Chicago withdrew on account of engine trouble, leaving the Buick and two Case cars to fight it out. Each had its turn in the lead, but the tenth mile found the white Case, driven by Jaggersberger, at the head of the procession, and it held that position to the end, with the Buick second. Time, 16:25 2-5.

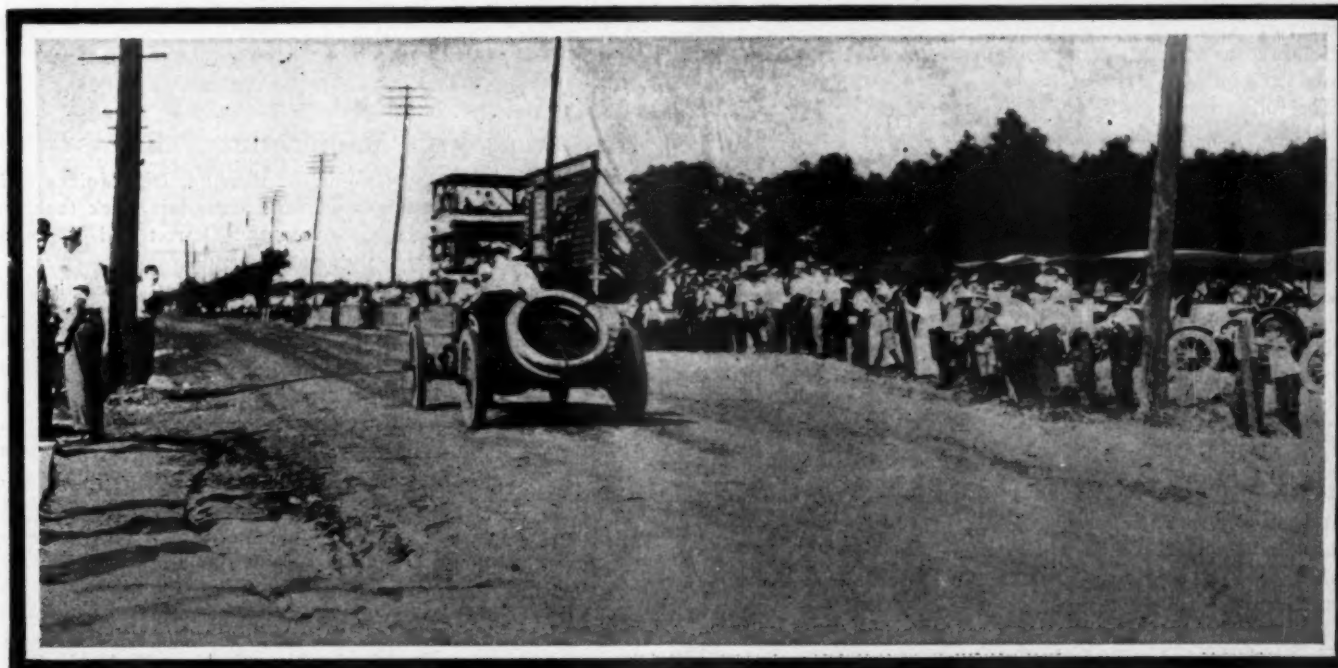
Burman defended the Remy Brassard trophy successfully.

The final race, a five-mile handicap, free-for-all, developed some first-class handicapping. The Firestone went away first with a handicap of 50 seconds and the Cutting followed 10 seconds later. Nyquist sent his Buick away with 35 seconds lead over the scratch man and Heineman let the Case go five seconds later. Five more seconds elapsed, then the white Case car shot over the line with 25 seconds over the scratch car. The Hotchkiss was given 10 seconds to get clear of Burman and his Benz

at scratch. Burman started a terrific drive and on the third mile began overhauling the others, winning by a narrow margin.

McNay brought in the Cutting second with the Case, Jaggersberger, third, Heineman fourth, Kilpatrick fifth and Nyquist sixth. Burman's time from the scratch was 4:49 3-5. Summary:

Five Miles, Class C, Non-Stock, 231 to 300 Cubic Inches				
Position	Car	Driver	Time	
1	Case	Jaggersberger	5:27	
2	Case	Heineman		
Five Miles, Class C, Non-Stock, 301 to 450 Cubic Inches				
1	Buick	Nyquist	5:44	
2	Cutting	McNay		
3	Firestone-Columbus	Sandell		
Fifteen Miles, Class E, Non-Stock, 300 Cubic Inches and Under				
1	Case	Jaggersberger	16:25 2-3	
2	Buick	Nyquist		
Exhibition, Three Miles with Tire Change				
	Marmon Wasp	Ray Harroun	4:45	
Five Miles, Class D, Non-Stock, Free-for-All				
1	Benz	Burman	5:06	
2	Mercedes	Lee Oldfield		
3	Hotchkiss	Kilpatrick		
Exhibition Mile (Track Record: 49 2-5)				
	Blitzen Benz	Burman	First trial	Second trial
			:50 3-5	:50
Three Miles, Class D, Non-Stock, Free-for-All (Best Two in Three)				
For Remy, Grand, Brassard				
First Heat				
1	Benz	Burman	3:01 2-4	
2	Hotchkiss	Kilpatrick		
3	Mercedes	Lee Oldfield		
Second Heat				
1	Benz	Burman	2:53	
2	Mercedes	Lee Oldfield		
3	Hotchkiss	Kilpatrick		
Three Mile Exhibition Race				
1	Marmon Wasp	Ray Harroun	3:58	
2	Case	Lou Heineman		
Five Mile, Class E, Free-for-All Handicap				
1	Case	Heineman (15 sec.)	5:08 4-5	
2	Case	Jaggersberger (Scr.)		
3	Buick	Nyquist (15 sec.)		
4	Cutting	McNay (10 sec.)		
5	Firestone-Columbus	Sandell (30 sec.)		
Five-Mile Special Handicap, Class C, Non-Stock, 301 to 450 Cubic Inches				
1	Firestone-Columbus	Sandell (40 sec.)	5:32	
2	Buick	Nyquist		
3	Cutting	McNay (40 sec.)		
Free-for-All Five Mile Handicap				
1	Benz	Burman (Scr.)	4:49 3-5	
2	Cutting	McNay (40 sec.)		
3	Case	Jaggersberger (25 sec.)		
4	Case	Heineman (30 sec.)		
5	Hotchkiss	Kilpatrick (10 sec.)		
6	Buick	Nyquist (35 sec.)		



View looking down the Fern Bank Dam course toward the press stand—the winning Fiat about to cross the line

Short Items of News— Boston's Two Shows

BOSTON, Sept. 9.—It is a settled fact now that Boston is to have two distinct motor shows, one for pleasure cars and the other for commercial vehicles. Some time ago the Boston Commercial Motor Vehicle Association voted that it would conduct such a show, but there was some talk about a change. The sending out of the application blanks for the regular pleasure car show, however, makes it clear that there will be a second exhibition for no provision is made for commercial vehicles. The pleasure cars will be exhibited in Mechanics' Building during the week of March 2-9, 1912, this being the regular period that the Boston Automobile Dealers Association holds its show. Then the week following the Boston Commercial Motor Vehicle Association will have its exhibition. As many of the dealers are members of both associations it will be an easy matter to turn from one show to another and Chester I. Campbell, who manages the motor exhibitions here each year, will be the man in charge of both next March. For the pleasure car show the diagrams provide for about 114,000 square feet space, but that amount will not be needed for the commercial show. With no business vehicles in the pleasure section it will allow a great many more exhibitors this season. In the past a number of dealers had no chance to get in and this led to abortive attempts from time to time to hold separate shows, but they were failures. The extra week for the commercial vehicles will now allow all types of wagons and trucks to be displayed, too, which was not possible in the past. And there will be no need of an annex now even though the agencies have multiplied a great deal in Boston since the last show.

Seventeen Starters in Omaha Run

OMAHA, NEB., Sept. 11.—The cars entered in the endurance run of the Omaha Motor Club for the World-Herald trophy, will leave at 6:30 A.M. to-morrow morning, on the four-day contest, intended as a dedicatory run over the newly improved North Platte route from Omaha to Colorado. The total mileage will be 656.9 miles.

The first night's stop is at Grand Island, 141.9 miles from Omaha; that on the second night being at North Platte, 168 miles farther. Returning, the cars will come back over the North Platte route to Kearney and then strike across to Hastings, the day's run being 174 miles. From here the South Platte route is followed to Omaha, going through Lincoln, the last day's run being 172.4 miles.

The following cars will start: No. 1, Lexington; No. 2, Ford; No. 3, Ford; No. 4, Ford, Glass & Evans, Grand Island; No. 5, Ford; No. 6, Velie; No. 7, Chalmers; No. 8, Kelley truck; No. 9, Case; No. 10, Maxwell; No. 11, Cartecar; No. 12, Marion; No. 14, Alco; No. 15, Paige-Detroit; No. 16, Paige-Detroit; No. 17, Lexington, and No. 18, Maxwell.

The pilot and Inter-State Auto Company official cars will be Inter-States, the Hupmobile, W. L. Huffman Auto Company, press car, a Hupmobile, and the judges' and press car, a Ford.

Ole Hibner is referee of the run, Otto P. Nestman chief observer, and George W. Coe chairman of the technical committee.

Motor Exhibits at Milwaukee Show

MILWAUKEE, WIS., Sept. 9.—Milwaukee motor car, motor, parts and accessory factories were well represented at the big Industrial Exposition held in the Auditorium, Milwaukee, from September 2 to 12, under auspices of the Merchants & Manufacturers' Association in commemoration of the fifteenth anniversary of its organization. The exhibits were confined to Milwaukee-made products and it was the first time an exposition of this kind was held in Milwaukee, which now ranks as the second largest manufacturing district in the United States. The Wis-

consin Motor Manufacturing Company exhibited a number of motors for trucks, pleasure cars and boats, including a six-cylinder, 50 horsepower motor, a 4-60 and a 4-45, in addition to rough and finished castings, crankshafts, etc. Other exhibitors in this line were: Davis Manufacturing Co.; Beaver Manufacturing Co. and A. O. Smith Co. The American Oxhydric Co., the Vilter Manufacturing Co. and the Western Fixture Co. exhibited welding and cutting apparatus. The Crown Commercial Car Co. was among the motor truck exhibitors. A feature of the display of The Falk Co. was a large one-cylinder kerosene engine which produced all power for lighting and working exhibits, and a number of sets of helical gear systems in operation. The Evinrude Motor Co. had a display of Evinrude motors which convert ordinary rowboats into launches or motor boats. The Milwaukee School of Engineering had a complete wireless outfit, together with a model airship, the motor of which was started and stopped by wireless nearly across the main arena of the Auditorium.

Big Garage Fire in Boston

BOSTON, Sept. 10.—A big garage fire started early this morning in the quarters occupied by Kenneth A. Skinner, who does a large garage and renting business, on Clarendon street. The fire started in one of the rear garage rooms from some unknown cause and before it was put out 45 machines were destroyed or badly damaged. Mr. Skinner estimated the loss first at \$150,000, but it is thought that this will be found to be too high when the cars are given a thorough inspection. He said that there were 50 machines in the building of which 40 were private cars, the rest being his renting cars. Only five machines were brought out, the fire made such rapid headway. The structure was formerly an old freight shed, and right behind it were the repair departments of several other motor concerns. It was thought that the fire would spread to these places and there was a rush to get the cars out of the buildings. In a short time the streets near the scene were filled with machines that had been run out and these also interfered with the firemen. Mr. Skinner was planning to move in a few days to the other end of the structure, to the quarters formerly occupied by the Winton company, and which had been vacated about a month. But for the fact that about 25 taxicabs which are garaged there were not due to be put up until about 3 in the morning the loss would have been far greater, as it would have been impossible to have gotten these out. Mr. Skinner said that his loss was covered by insurance, but he could not tell how many of the privately owned cars were insured.

Iowans Visit Manufacturers' Plants

DES MOINES, IOWA, Sept. 9.—C. L. Herring, Des Moines and Iowa agent for the Rambler and Ford cars, this week took 60 dealers from all over the state into the Detroit and Kenosha factories of the cars which the dealers handle.

At Detroit it was said that it was the biggest delegation of dealers which had ever been there from a single state. A 50-mile trip around Detroit and a banquet were among the entertainment features there and on the return trip Mr. Herring gave the dealers a dinner at the La Salle Hotel in Chicago.

The dealers in the party were J. E. Doze, Humeston; C. W. Bopp, Hawkeye; W. A. Wells, Sully; John Jons, Boone; George W. Bilbo, Creston; James F. Buxton, Creston; O. A. Repass, Dallas Center; B. O. Bufkin, Runnells; F. Sweitzer, Hudson; E. J. Miles, Newton; Charles D. Booth, Harlan; H. J. Van Vliet, Pella; S. E. Huff, Afton; A. H. Dale, Des Moines; Edward Van Gorp, Pella; H. S. Petty, Elliott; Dale Smith, Indianola; Harris Thornton, Ankeny; Charles C. Norton, Avoca; A. C. Ware, Oakland; W. H. Fowler, Pella; A. S. Workman, Glenwood; H. J. Lytle, Ottumwa; S. Schacht, Lime Springs; T. A. Mitchell, Council Bluffs; Bert Sanford, Atlantic; D. P. Hogan, Massena; L. L. Bybee, Knoxville; G. I. Coffman, Kinross; D. N. Hunt,

Osceola; L. A. Shearer, Montezuma; C. L. Seibel, Thayer; D. E. Moon, Birmingham; George De Mose, Germanville; George F. Taglander, Brighton; F. G. Hinegardner, Toledo; W. J. Courtney, Cedar Rapids; W. E. West, New Hampton; J. G. Herring, Atlantic; Lewis Scheller, Kellerton; John Connelly, Greenfield; Charles Robinson, Villisca; W. L. Morrison, Conway; C. A. Delano, Lone Tree; W. P. Brauch, Marengo; John R. Rude, Perry; Perry C. Rude, Perry; John Mace, Allerton; C. A. Bishop, Bedford; M. A. Gifford, Lewis; David Burkett, Dallas Center; J. P. Bowen, Ottumwa; A. Mickel, Walnut.

Chicago's Contest Happenings

CHICAGO, Sept. 11.—Next on the Chicago Motor Club's calendar is the commercial motor vehicle demonstration which is set for Monday, Tuesday and Wednesday of next week. This will not be a contest but a demonstration in keeping with the desires of the truck makers, consisting of out and home runs of around 60 miles a day, each truck carrying its scheduled load. The total distance to be covered in the three days will be 159 miles. If the entry list warrants it, a horse-drawn vehicle will be sent out also over the same routes in order that comparisons may be made, the horses being required to go the entire distance even if it takes a week. The entries at present number twelve, but it is thought there will be at least twenty-five start. Those in at the present time are three Clarks, two Saurers and one each of the Alco, Buick, Old Reliable, Little Giant, La Moop, and Swanson.

Already an official report on the Elgin race attendances has been made by Philip Freiler, treasurer of the Elgin Automobile Road Racing Association. According to Mr. Freiler the association collected 14,007 general admission tickets the first day and 28,002 the second, while the parking space returns show 1354 cars the first day and 2480 the second day. The association distributed \$10,200 among the 75 farmers who own property around the course for their share of the receipts and on the guarantee that was made them. In addition to this the farmers received \$4,500 for work which they did on the road. An interesting item was the sum of \$10,500 which was spent by the Elgin association for widening, oiling and repairing the racing circuit.

Baltimore's Last Toll Gate Doomed

BALTIMORE, MD.—The old toll gate on the Reisterstown road, near the northern entrance to Druid Hill Park, the only one left in the city, is now doomed to go. At a meeting held in the City Hall last Thursday the officials of the Reisterstown Turnpike Company agreed to accept \$70,000 for the portion of the roadway within the city limits.

The Ostende Meeting

The races organized by the Automobile Club of Ostende, held over the Ostende-Nieuport-Snaeskerke-Ostende circuit on September 3, were very successful. The weather was favorable and the crowd that turned out to witness the racing was amply repaid. Next year will see not only a repetition of the races, but also a competition for commercial vehicles.

Four different events were run off, the mileage covered in three of the events being 207 miles, and in the other 248.5 miles. Three of the races were won by Lion-Peugeot cars and the results were as follows:

Coupe de Liederkerke, 248½ miles; winner, Fendu; driver, Veraeren; time, 6 hours 12 minutes 55 seconds.

Coupe d'Ostende and Coupe Williams, 207 miles; winner, Lion-Peugeot; driver, Boillot; time, 3 hours 28 minutes 33 seconds (average, 60.8 miles per hour). Second, Excelsior; driver, Coosemans; time, 3 hours 55 minutes 55 seconds.

Coupe des Voiturettes, 207 miles; winner, Lion-Peugeot; driver, Goux; time, 3 hours 52 minutes 38 seconds.

Memos From All Points— Latest Contest News

DENVER, COL., Sept. 11.—The second annual Chalmers Owners' Consistency tour will be run on September 14 and 15, 1911, starting from the McDuffee Motor Company's salesrooms, 1517 Tremont Place, at 8.30 A.M. The management has taken great pains to provide everything necessary for the participants in the tour and ladies are especially invited to compete for the Chalmers trophy. The contest is not one of speed but of efficient car management.

SYRACUSE, N. Y., Sept. 9.—Motorists of Syracuse and Central and Northern New York are on the *qui vive* for the most pretentious race card ever offered locally, scheduled for Saturday, Sept. 16, the closing day of the New York State Fair, upon one of the fastest mile circular courses in the country and with President Taft as the guest of honor. Vice-President Sherman will also probably be here. Burman, in the Blitzen-Benz, will be one of a famous list of visiting drivers. He will endeavor to lower his mile world's record of 48.72 seconds on a circular track. Burman figures his opportunity is here, since drivers regard the Syracuse track as the fastest mile dirt track in the country.

GREENSBORO, N. C., Sept. 9.—The Greensboro Automobile Club has just been organized with a membership of 35—and good prospects for 100 or more. The officers are as follows: C. M. Van Story, president; Dr. J. T. J. Battle, vice-president; M. W. Thompson, secretary, and R. C. Bernau, treasurer.

The main object of the club is the promotion of good roads. The Glidden Tour is expected to pass through this city. If the schedule makes this city a night stop, the cars will be housed in the Auditorium. The county (Guilford), it will be remembered, captured the Good Roads prize of \$1,000 in November, 1909, offered by the *Atlanta Journal* and *N. Y. Herald*.

MILWAUKEE, WIS., Sept. 9.—The Milwaukee Automobile Club entertained 560 orphans, the largest number since it inaugurated an Annual Orphans' Outing day, on September 7, more than 100 touring cars being donated by members to carry the little unfortunates from the asylums to Washington Park, where a lunch was served on the grass. Frederick Gettelman was chairman of the outing committee and W. H. Pipkorn, through whose efforts the outings were first arranged and continued, acted as chief marshal. The supplies were transported in three trucks, a Stegeman, a White and a Pierce-Arrow. Mrs. Gustav G. Pabst, wife of the president of the Pabst Brewing Company, donated all ice cream and cakes, as has been her custom in past years.

Indianapolis Abandons Grade Crossings

INDIANAPOLIS, IND., Sept. 11.—This city within the next few weeks will begin the abolition of all railroad crossings at grade in the central part of the city. It is the intention to let contracts for the entire work at one time, and it is believed that within three years all grade crossings in the center of the city will be eliminated, leaving grade crossings only on the outskirts.

Henry W. Klausmann, city engineer, is now engaged in preparing plans for the work, which, it is estimated, will cost approximately \$6,000,000, and work will start by January 1.

Under the law the railroad companies must pay 75 per cent., the city 16 per cent. and the county and street railroad company the remainder. At the last session of the Legislature the city was authorized to levy a special tax of 6 cents on each \$100.

Rain Kills Hartford Races

Rain and bad weather at Hartford, Friday night, caused the abandonment of the race meeting that was scheduled to be held at Charter Oak park on the final day of the Connecticut State fair. Quite a program of races had been arranged with a number of local entries.

S.A.E. Prepares for Active Winter

FOR the first time in its history the S. A. E. is planning a foreign trip. Indications point to a possible participation in the trip of about 100.

The members of the S. A. E. will leave this side of the water for England about November 1st. The first few days in England will be spent in examining the exhibits of the automobile show which will then be in progress at Olympia, London. The visiting engineers will be entertained by the Incorporated Institution of Automobile Engineers, which is the English Society corresponding to the Society of Automobile Engineers.

A trip will be made to Birmingham to see the factories of the Austin Motor Company and the Wolseley Motor Car Company as well as to Coventry to go through the plant of the Daimler Motor Company.

A run through some of the interesting country in the Warwickshire district, Stratford-on-Avon, and surrounding territory, has been arranged.

The Humber automobile factory, one of the largest in England, will also be visited.

It is planned to devote an evening to joint technical discussion by members of the Institution of Automobile Engineers and the Society of Automobile Engineers.

The S. A. E. members will be shown around the garages of one of the big London cab companies, and perhaps the plant of the London General Omnibus Company.

The party of engineers will probably go also to Newcastle-on-Tyne to see the Armstrong-Whitworth factory.

The Brooklands track will be visited, some racing cars being brought specially for the occasion.

The American motor car designers and producers will make a short trip to France to see some automobile factories there.

Autumn and winter schedules of meetings of the Society of Automobile Engineers have been announced. At a meeting of the society council held last week it was decided that the annual meeting of the society shall be held in New York City, January 18, 19 and 20. This is during the commercial vehicle division of the automobile show at Madison Square Garden. Scientific papers will be presented and discussed, as well as reports of the standards committees; and officers for the ensuing year will be elected.

The Philadelphia branch of the society held a meeting at the Engineers' Club in Philadelphia, September 13.

On September 28 the Metropolitan section of the S. A. E., in its session at 1451 Broadway, New York City, will discuss slide, rotary and piston versus poppet valves for gas engine service, and novelties in valve construction. Also brake-horsepower developed by automobile motors of various current sizes.

The next meeting of the Detroit section of the S. A. E. will be held in Detroit on Thursday, October 5.

First of the committee meetings ordered at the Dayton convention of the Society of Automobile Engineers, with reference to the Iron and Steel Division of the Standards Committee, was held recently at the headquarters of the organization at Broadway and Forty-first street.

This division has been in the habit of making semi-annual reports incorporating specifications for plain and alloyed steels and irons used in automobile manufacture, but at the Dayton general meeting it was determined to instruct the committee to take some further action than was incorporated in its accepted report.

The chief matter under discussion was as to whether chemical specifications or appropriate physical qualities should be the rule in ordering steel. Whether the buyer should specify the constituent alloys to enter into the manufacture of the steel or-

dered or whether he should state the purpose for which the steel was to be used and specify that it must have certain physical qualities rather than a fixed chemical composition.

The steel men insist that if a buyer specifies a certain chemical composition he should not incorporate into his order that the steel shall have certain qualities or vice versa. The position of the Iron and Steel division is that the chemical formula has the most apparent advantages.

At the recent meeting of the division the following were present: Henry Souther, Consulting Engineer, Chairman; W. P. Barba (Midvale Steel Company); E. L. French (Crucible Steel Company of America); F. W. Trabold (J. H. Williams & Company); Howard E. Coffin (Hudson Motor Car Company); M. T. Lothrop (Halcomb Steel Company); George L. Norris (American Vanadium Company); H. B. Bent (Pennsylvania Steel Company); S. V. Hunnings (American Locomotive Company); Joseph Schaeffers; A. R. Gormully (United States Motor Company); Thomas Towne (Union Drawn Steel Company; New York State Steel Company); Coker F. Clarkson, Secretary.

Glidden Pathfinder En Route South

With the start of the Pathfinding Flanders car from this city on the afternoon of Friday, September 8, the Glidden Tour took on a new air of importance. The car has since then been making good headway and on Monday had reached Roanoke, Va., on the trip. Two days will be spent at Atlanta, Ga., and Jacksonville, the objective point of the trip, should be reached September 19.

The first day's trip was to Philadelphia; Saturday night Gettysburg was reached; Sunday night the car had reached Staunton, and next day it was in Roanoke. The roads to Philadelphia are good, the only trouble being the necessity of procuring Jersey licenses. Between Philadelphia and Gettysburg the chief difficulty will be in the toll-gate charges, \$4.75 being the maximum amount for a single car between these cities. The roads from Philadelphia to Gettysburg are excellent with the exception of the last 10 miles, which is a worn-out pike. From Gettysburg to Winston-Salem, N. C., the roads are also good.

Owing to the change of the dates of the tour and its conflict with the 1600-mile Reliability Run of the Chicago Motor Club it was impossible for David Beecroft, the referee officially selected to officiate, and P. J. Walker, member of the Contest Board, San Francisco, Cal., has accepted the position of referee.

To date 40 entries have been received. Of these 11 are factory entries, made up as follows: Maxwell, three cars; Flanders, three; Metz, three; Halladay, one; and McIntyre, one. The remainder of the entries are private owners who live in Atlanta, Ga., Jacksonville, Fla., and other Southern cities. Entries close October 1.

Chicago Dealers' Open-House Week

CHICAGO, Sept. 11.—The Chicago Automobile Trade Association has decided definitely to stage its fall opening from September 30 to October 7 inclusive, a period of eight days, in which time the dealers will keep open house, displaying their 1912 models and decorating the row. It is planned to illuminate the street at night by means of strings of incandescents and each dealer is supposed to keep open evenings. Plans for financing the show call for assessing each dealer according to his frontage, the car dealers occupying the first floor paying \$2 a foot, with a minimum charge of \$5. Those on side streets are to pay 75 cents a foot. This, it is thought, will raise a fund that will enable Chicago to make a proper display.

Peeps Thro' Goggles at Distant Lands

What the Foreigners Are Doing in Automobiling

Items of interest, gathered here and there in foreign countries, having special reference to the activities of motorists. Motoring in Italy; Irish improving roads; Canadian touring; Scotch oppose radical legislation; unique joy-ride case; English medicos take to the automobile.

MOTORING in Italy affords some of the most enjoyable moments of the automobilist's series of tours. This is particularly the case when the route includes Florence; Urbino, the city of Raphael; Bramante and the gorgeous Frederico di Montefeltro; Perugia and Orvieto in Siena; lovely Montepulciano; Volterra, and other small hill towns of Tuscany and Umbria.

The Irish Roads Improvement Section of the Automobile Association and Motor Club is doing an amount of work that is winning praise from the country people. The section's work includes the advancement of reforms in the methods of constructing and maintaining the roads. Incidentally, the section is making a persistent effort to mitigate the very bad habit of patching roads with metal of unseemly proportions.

There are now several hundred automobilists in the Island of Java, about 500 machines having been imported into the Island in 1910. The Java Motor Club has the credit for accomplishing splendid work in the matter of establishing petrol depots in several sections of the Island.

There is not a finer drive in all of Canada than the roads found in Nanitoulin Island, which lies at the head of the Georgian Bay. These highways stretch over hundreds of miles. And yet there is not a single automobile on the island, nor is there a tram car line or a railway. But it is timely to say that the denizens of the island are by no means happy over the existing conditions of transit, as they lose days in travel while on business errands, horse-drawn vehicles being the only accommodation afforded. These people are seeking a means by which automobiles may be introduced into the island. Nearly all of the goods consumed are supplied by commercial travelers who wend their weary way over the island. There is a field there for passenger and freight motor cars, even though the market is limited.

Simcoe, Grey and Bruce Counties in Owen Sound are the fortunate possessors of splendid roads. A certain cement quality in the gravel and stone makes the highways quite equal to macadamized roads. Although there are but six motor cars in Owen Sound owned by private individuals, and one automobile for public hire, scores of touring parties head for Georgian Bay Summer resorts during the season and a great many automobiles are to be seen. One touring party made the distance of 162 miles from Niagara Falls to Owen Sound within the space of seven hours. They reported the roads as being in excellent condition, and as improving until they reach the bay. There are 200,000 inhabitants residing in the Owen Sound district, the towns including Markdale, Derham, Harriston, Hanover, Chesley, Southampton, Wiarton, Meadford and Collingwood. A big opening exists in that section of the country for passenger and freight automobile service, the towns now being wholly dependent upon teams to supply the local traffic. Owen Sound finds it impossible to take care of its trade without the aid of automobiles, for business men are chronically behind in their deliveries in spite of the fact that eighteen livery establishments are maintained there. The only months that the snow proves a serious impediment are from January to April. The remaining nine months of the year are favorable to automobile service. The people of the

country are beginning to ask if it is not wiser to adopt motor cars for passenger and freight service than it is to depend upon the two lame railway lines which are now in commission.

It has been decided to hold the next International Automobile Show in Berlin, from the 12th to the 22d of October. This will be the first exhibition of the kind given in Berlin since 1908.

Scotland is taking good care that her East and West Coast automobile routes are being admirably patrolled. Men are employed on duty continuously. Handbooks are published enumerating the location of all patrols, as well as the address of the nearest road-agent, in case repair parts are required by automobilists using the road.

The Legal and Legislative Committee of the Scottish Automobile Club declares the association opposed to the Motor Traffic Street Noises Bill recently introduced locally. The committee base their antagonism on the ground that automobile owners would be put to great inconvenience were they to comply with one of the most signal provisions of the bill, namely, that compelling a uniform type of horns to be used.

The miraculous growth of the Royal Automobile Club of London is a subject of general discussion throughout Europe. Applications for membership reached 1,483 in number during July.

A case in London recently came to trial where a chauffeur had taken out his employer's automobile for the purpose of indulging in a "joy ride"—the term was used in the Magistrate's court. At the end of the day in question the employer discovered that the chauffeur had used up an amount of gasoline sufficient to run the car one hundred miles. Determined that he would make an example of his driver, the employer caused him to be arrested on a charge of larceny of the gasoline. When the case came up in the police court the chauffeur was given the choice of being dealt with summarily or going for trial at the Sessions. The chauffeur took advantage of the latter prerogative. Without hearing any statement of the important points involved or listening to a hearing by the Court, the Grand Jury threw out the bill and the chauffeur went free. But this was not all. The Presiding Judge in endorsing the action of the Grand Jury compared the chauffeur's act of appropriating the gasoline with that of a groom feeding his employer's horse with his employer's oats, thereby exonerating the chauffeur.

English medical practitioners have gone in for automobiles to a great extent within the last twelve months. But in order that they may ascertain if the motor car is an economical factor compared with the old horse-drawn shay these doctors have indulged in some demonstrations. They have found out that the average cost of operating a 15-horsepower machine is but a little more than one cent per mile in excess of running a 6 to 8-horsepower motor car. They proved that the expense of operating a 20-horsepower machine is less than two cents a mile in excess of the average cost of running a small, single-cylinder vehicle. The average fuel consumption of a 15-horsepower machine proved to be one gallon for twenty miles, the same measure supplying a 25-horsepower car for a distance of seventeen miles. The doctors say these figures are less than the expense of keeping a horse.

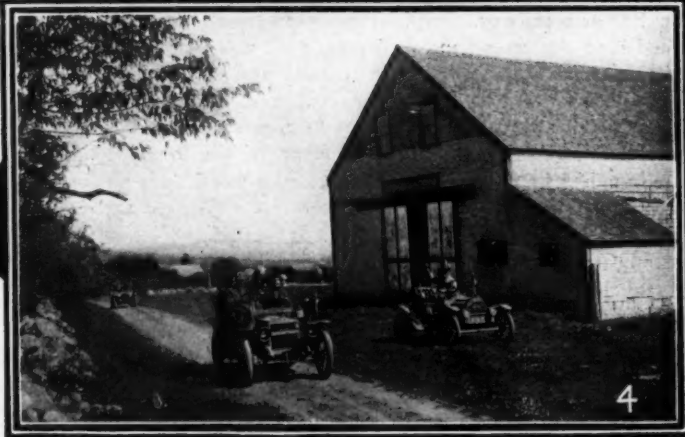
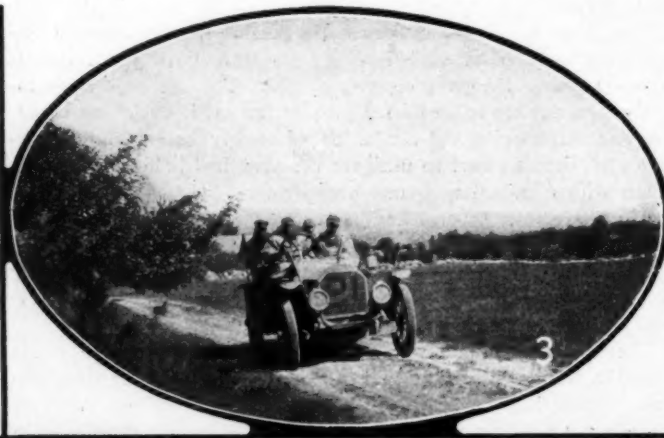
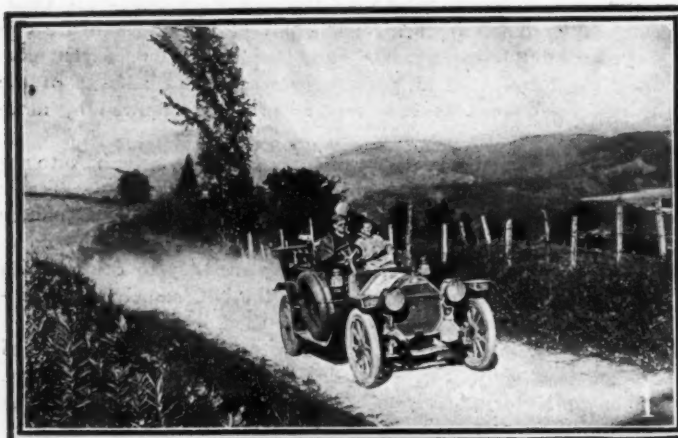
From Springs to Hard Coal Mines

An Ideal Autumn Tour for Novelty Seekers

How the automobilist may spend a few days in a rather unusual tour from the splendid resorts of New York and New England to the Anthracite region of Pennsylvania with all its richness and squalor and its foreign appearance and interesting details. The trip as scheduled is for three days' running time, but it should take four and ought not to be condensed into two.

THERE is a constant demand from motor tourists who are spending the early Autumn in the New York hill counties or at the New England resorts for something in the line of diversion. To such an automobile tour from, say,

issue of the *Blue Book*. Ballston is the first town of any size to be met. The first five miles is over excellent macadam which leads into a good dirt road two miles before reaching Ballston. The country through which this part of the route goes is strik-



1—Riding over millions of tons of anthracite
2—Beginning the climb from Binghamton to Wilkes-Barre

3—A typical country lane in Central New York
4—Approaching the Susquehanna River near Harrisburg

Saratoga through Southern New York into Pennsylvania, and a swing around through the mountains of that State may serve the purpose of affording a little variety to the vacation.

There are numerous routes that may be followed, but the pleasure of such a tour is measured largely by the absence of difficulties to be encountered, and good roads and adequate hotel accommodations are among the things most devoutly to be desired. As the routes selected for the purposes of this article have been mapped out by the *Automobile Blue Book* and indorsed by the Touring Club of America it may be assumed that the tour will be over the best roads afforded by the sections traversed.

Starting from Saratoga the party will find an excellent route as far as Amsterdam in Route 229 of Volume 1 of the current

ingly beautiful and varied in its scenic setting and will be long remembered as a beautiful picture. Charlton, a small hamlet, is about eight miles farther along, and shortly after passing the village one of the worst stretches of road on the trip will be found. This, however, is not long, and after it is passed the roads will be found to be excellent except for some rather trying water-breakers after passing Glenville. From there to Amsterdam the road is macadamized and is in fine condition. The mileage to Amsterdam is 28.9.

At this point a change to Route 77 is advisable in order to travel for a distance on the main truck road up the Mohawk Valley to Herkimer. The roads out of Amsterdam are finely improved and the way passes Aiken Station, Fonda, Yost's Sta-

tion, Palatine Bridge, St. Johnsville and Little Falls before reaching Herkimer. This is 49.6 miles from Amsterdam, practically all of which is over improved roads. A left turn is made at Herkimer and a short run brings the party to Cooperstown.

From Cooperstown to Oneonta the proper route to follow is Route 289A, passing through Milford, Portlandville, Milford Center to Oneonta, a mileage of 12.4, making a total mileage for the tour so far of 96 miles. If the start from Saratoga has been early, this is a good place for the midday meal and rest, for there are several excellent places of refreshment for the members of the party and the car at Oneonta.

The first hour of the morning trip will be found to be the hardest and at the same time the pleasantest of the run, but every minute will be enjoyed.

The afternoon start may be delayed until 3 o'clock if desired, because the rest of the day's run into Binghamton is only 61.4 miles by Route 301. This takes the party down the valley of the upper reaches of the Susquehanna River and through a delightful Summer resort region. The chief places to be passed are Otego, Wellsbridge Station, where the Susquehanna is crossed, Unadilla, a noted resort, Bainbridge, Afton, Nineveh, Harpurs-

are narrow and crowded with children, something like the East Side of New York City.

Out from Binghamton the way leads upward via Route 361R of Volume 3 of the *Blue Book*. This route passes through Kirkwood, N. Y., and crossing the Pennsylvania State line touches Great Bend, New Milford, Harford, Glenwood, Fleetville, Wallsville, Waverley, Clark's Green, Clark's Summit and Providence into Scranton. This is 59.3 miles from Binghamton and has some heavy hills and a few rough spots in the roads, which are not sufficiently long to be annoying.

From Scranton to Wilkes-Barre is 17.8 miles via Route 365 of the same volume. This is the hard-coal region proper and there is nothing like it on earth. The millions of tons of anthracite that have been mined and used in the past constitute only a fraction of the wealth that still lies below the surface of the blue hills awaiting the call of the miner to serve a useful purpose in the advancement and comfort of humanity.

The road touches Hyde Park, Taylor, Old Forge Station, Duryea, Pittston Junction Station, Pittston, where a good macadam road is picked up into Wilkes-Barre.

Considerable time ought to be devoted to this day's run as



5—A fine bit of road near Oneonta, N. Y.
6—In the heart of the anthracite region

7—Before meeting the State road into Binghamton
8—A Glimpse of the Susquehanna near Wilkes-Barre

ville, Belden, Sanitaria Springs and Port Crane into Binghamton.

The roads are generally good and there should be no difficulty in reaching the objective point of the day's run by 6 o'clock. Binghamton has a number of creditable places of entertainment.

The second day's run will give the party a taste of hill climbing into the heart of the richest anthracite country in the world which lies between Wilkes-Barre and Scranton, Pa., high in the Alleghenies. It is almost like a trip to Poland or Hungary to traverse the coal mining towns of this section. Plain English is understood only by the children and a few adults and the character of some of the places is very similar to that of villages under the flag of Kaiser Wilhelm and the Emperor Franz Josef, to say nothing of Czar Nicholas. The streets in these villages

the grades are pretty stiff in spots and the roads are not marvels of construction. Then, too, a leisurely inspection of the anthracite region will repay all the time spent upon it. Besides these things, some of the scenery along the way rivals anything in the eastern part of the United States in rugged beauty and sylvan richness.

The third day of the trip is to Harrisburg, the capital of Pennsylvania, and, via Route 391, this is 108.8 miles through the heart of the Alleghany Mountains. It follows the valley of the Susquehanna River to Bloomsburg, Danville, Northumberland, Shamokin Dam, Port Trevorton to Harrisburg.

From Harrisburg the tourists may pursue any of a dozen different directions and can return by varied routes.

Stresses and Strains in Tires

Part I.

Translation of an article by Henri Petit, in *La Technique Automobile et Aérienne*

THE duty that the pneumatic tire—the connecting link between the car and the ground—has to perform, is very complex. So complex is it that no one has yet been able to completely analyze it, at any rate not sufficiently in order to be able to reconstruct an integral synthesis from the resultant analysis so as to evolve the elastic wheel.

It is possible to state affirmatively that the moment that anyone has discovered the exact manner in which the pneumatic cushion of an automobile wheel works, then the problem of the elastic or resilient wheel will be three parts solved.

It is not the intention here to solve the complex rôle of the pneumatic; the object of this article is more modest. It is proposed to show the nature of the efforts supported by the tires, their approximate direction in the order of sizes.

The proposed study about to be indulged in will not prevent tires from wearing out and bursting to the great despair of the owner. But it will allow him to get an insight into the different phases and multiple causes of wear and premature destruction.

The chauffeur will be able to see where his personal co-efficient comes in, and consequently be in a better position to give the tires all the cares that are dependent upon him in order to prolong their useful existence.

It is proposed to classify the efforts to which the tire is submitted in static efforts (these are the efforts that act upon the tire when the car is standing still) and dynamic efforts, that is to say, efforts that are caused by the diverse movements of the car.

Static Efforts

It is presumed that the reader knows how a pneumatic tire is made, and in the following article it will be presumed that the inflated tire presents geometrically the exact form of a torus.* This hypothesis is as near to the truth as it is possible to go and in every case the errors that may be made in adopting it are much less than approximation that we hope to attain.

It will be remembered that R is the mean radius of the torus, r the radius of the meridian circle. The dimensions by which tires are usually denoted are expressed by

$$2(R+r) \text{ (diameter of the parallel equator)}$$

and

$$2r \text{ (diameter of the meridian).}$$

Supposing p to represent the difference in pressures (expressed in kilog per square centimeter) between the air enclosed in the inner tube and the atmospheric air.

The figure p will be the reading on a manometer or pressure gauge applied to the valve.

p_0 will denote the initial pressure to which the tire was inflated, or to be more exact we will call p_0 the value that p will take when the tire is not opposed to any exterior effort, the temperature of the air inside being the same as the exterior air at the moment of inflation.

p_0 will therefore be the theoretical pressure indicated by the makers, which are given as a guide for inflating tires.

Finally we will admit for the calculations of tensions supported by the canvas, that

1. That the tire is perfectly souple.

2. That the canvas does the work, the rubber of the inner tube and outer cover not supporting any effort.

*A surface described by a conical section, a circle rotating about a straight line in its own plane. A solid of revolution inclosed in such a surface sometimes called anchor ring or simply ring.—Webster.

3. That the canvas known as straight grain included in the arc are not affected by the effort due to the internal pressure.

Superficial Tension

One knows that an elastic membrane separating two gaseous masses, the pressures of which are different, supports an effort of traction which is a component of the differences in pressure and of the curvature of the membrane.

If the radii of the principal curvatures are designated by r' and R' at any point of the inflated tire the surface tension will have a value at this point

$$A = \frac{p}{\frac{1}{R} + \frac{1}{r}}$$

It is interesting to note the variations of the radii of the principal curvature of the torus at the different points of the surface.

The minimum radius r' is evidently equal to the constant value of the meridian circle.

$$r' = r$$

The radius R maximum will vary according to the different points of a given meridian.

It will be as well to give it a positive value (in the same manner as r') when the curvature will have its concavity turned toward the interior. Taking Fig. 1 as an example denoting a meridian section of the torus.

At the point A we have

$$R' = R + r$$

Considering the displacement from A to B the curvature diminishes until it becomes nil at B. R' will grow indefinitely from A to B while remaining positive.

In displacing from B to C the curvature becomes negative and augments the absolute value. The radius of the curvature varies from O to

$$-(R-r)$$

The surface tension A varies therefore between the two values

$$\frac{p}{\frac{1}{r} - \frac{1}{R-r}} \quad \text{and} \quad \frac{p}{\frac{1}{r} + \frac{1}{R+r}}$$

It is easy to see that the maximum will be at the point C. In fact the denominator is maximum when R' is negative and equal to $R-r$.

The maximum surface tension is therefore

$$A_M = \frac{p}{\frac{1}{r} - \frac{1}{R-r}} = \frac{p}{\frac{R-2r}{r(R-r)}}$$

It will be interesting to see how this compares with different

sizes of tires. First of all it should be noted that R is always much greater than r . We have therefore for the current dimensions of tires of cars the following:

For casings:			R
700×90	$R = 30.5 \text{ cm.}$	$r = 4.5$	$\frac{R}{r} = \text{about } 7$
790×90	$R = 38.5 \text{ cm.}$	$r = 4.5$	$\frac{R}{r} = \text{" } 7.5$
990×90	$R = 41 \text{ cm.}$	$r = 4.5$	$\frac{R}{r} = \text{" } 9$
820×120	$R = 35 \text{ cm.}$	$r = 6$	$\frac{R}{r} = \text{" } 6$
920×120	$R = 40 \text{ cm.}$	$r = 6$	$\frac{R}{r} = \text{" } 6.8$
895×135	$R = 38 \text{ cm.}$	$r = 6.8$	$\frac{R}{r} = \text{" } 5.5$
935×135	$R = 40 \text{ cm.}$	$r = 6.8$	$\frac{R}{r} = \text{" } 6$

The pressure p to which tires should be inflated varies, as everyone knows, with the diameter of the tire. That is why tires of 90 millimeter section should be inflated to 5 kilogrammes, 120 m.m. section to 6 kilos and 135 m.m. sections to 7 kilos.

It is easy to see how far the same section and also for the same pressure the maximum surface tension will vary.

It is expressed by

$$A_M = p r \frac{R - r}{R - 2r}$$

$$A_M = p r \frac{R}{r^2}$$

For the same section the product $p r$ is constant.

The fraction $\frac{R}{r}$

$$\frac{R}{r} = \frac{R - r}{r^2}$$

is greater than unity, and will decrease when $\frac{R}{r}$

increases. From which it is possible to draw the following conclusion:

The surface tension is proportionately smaller for

a given section of the tire as the diameter of the wheel increases.

If we consider the various sections of casings we can find out that the surface tension is proportionately greater as the tire increases in size.

In fact, in the product

$$A = p r \frac{R}{r^2}$$

the term p will increase when r increases.

This table will show that $\frac{R}{r}$ diminishes when r increases.

$$\frac{R}{r}$$

The three factors $p, r, \frac{R}{r}$ will increase with r .

$$\frac{R}{r}$$

That is why a 700×90 tire will have a superficial maximum tension:

$$A_M = 5 \times 4.5 \frac{7 - 1}{7 - 2} = 27 \text{ kilogrammes.}$$

$A_N 875 \times 135$

$$A_N = 7 \times 6.9 \frac{5.5 - 1}{5.5 - 2} = 61 \text{ kilogrammes.}$$

It is for this reason that tire makers manufacture the tires with a proportionately greater number of layers of canvas as the diameter increases.

Ninety millimeter section tires usually have 4 layers of canvas, while 135 m.m. sections have 7 layers of canvas.

The proportion indicated by the calculation does not seem to have been followed. This is accounted for by the fact that in all tires efforts independent of the diameter must be taken into

consideration, which will be explained later. So that if the number of layers of canvas to be used is denoted by n and a the tension to support each one of them, n must be calculated from the formula

$$n = \frac{A}{a}$$

which would seem rational if the surface tension were not taken into consideration, but it must be calculated from the following:

$$n = n_0 + \frac{A}{a}$$

(To be continued)

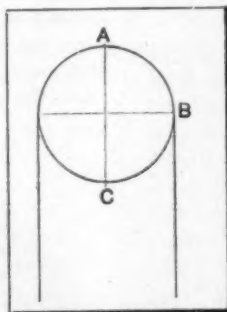


Fig. 1—Diagram denoting the meridian section of the tire

Harking Back a Decade

THE American Bicycle Company is preparing to move its headquarters for motor vehicles from Toledo, Ohio, to New York City.

The Crestmobile, long since relegated to the lumber room of the past, comes into the limelight by virtue of an announcement that, owing to costly improvements incorporated in the new model, \$50 had been added to its selling price of \$500.

The New York-Buffalo endurance test, with its seventy-seven entries, of which twenty-six were steamers, occupies not a little space in the secular and trade press.

Commercial vehicles are doing stunts, as is evidenced by an account of a Locomobile delivery wagon climbing Nelson's Hill

(north of Peekskill) without a stop, despite its 800-pound load.

Editorials have much to say regarding the stopping of the Newport races, the general tone of the comment being hostile to the motorists and favorable to those who succeeded in spoiling the proposed sport.

This week ten years ago a party of tourists from the Chicago Automobile Club were on the road en route to the Pan-American Exposition at Buffalo.

A writer in *The Motor Review* of August 12, 1901, deprecates the practice of crossing the spokes in the effort to attain rigidity in wire wheels, such procedure, in his opinion, hastening the disintegration of the wheel.

The Upkeep of the Car

When the Owner Is His Own Repairman

The automobile enthusiast derives a large proportion of his enjoyment from a thorough acquaintance with every part of his automobile. This knowledge is only picked up by doing the repair work which lies within the scope of the garage, whether it be upon the motor, chassis or body of the automobile.

FOR the automobile enthusiast who lives out of town, or in such a location that he is able to have his own private garage, nothing furnishes such a great diversion as attending to the needs of his car. In the same manner as the average amateur photographer finds half his enjoyment in the

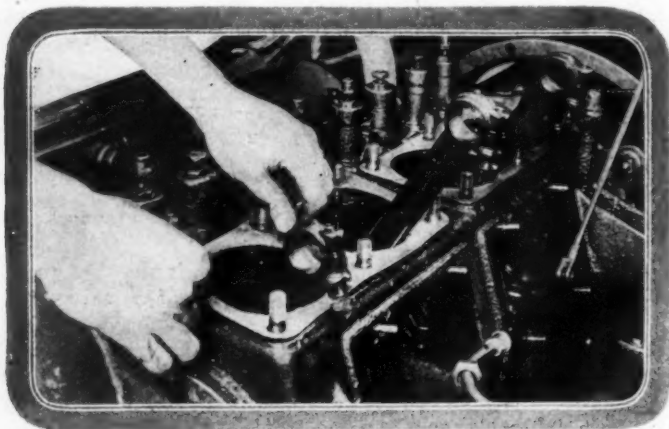


Fig. 1—Illustrating method of fitting gasket between cylinder and crankcase castings

making of his own pictures, so does the average automobilist, who has entered the game for the love of it, find his greatest pleasure in the knowledge that he knows his car from spark plugs to tires. He will know the meaning of the slightest sound which is distinct from the ordinary rhythm of the engine.

The garage will gradually accumulate the necessary tools as each job comes up until about the time that the second car is due to arrive, it will generally be found that Mr. Owner has his well-defined notions as to what kind of tools he wants and where he wants them kept. The character of the work turned out by the proprietor of the garage may be very closely determined before the work is completed by a casual inspection of the manner of keeping the tools. If the gasoline torch is found to be kicked into the farthest corner of the building because it did not happen to be needed in the last piece of work which was performed at the bench, an entirely accurate and correct idea of the manner in which the repair was carried out may be formed.

After the manner in which the garage is kept comes the despatch and neatness with which the actual work is done. It is assumed that the automobilist has some slight leaning toward things mechanical or he would have given up the attempt to be his own repairman a very short time after he first conceived the idea. Note the manner in which an experienced workman will go about making a repair. For one thing, there will be no lost motion. Lost motion is lost efficiency in any machine, whether the piece of mechanism be a man or an engine. There will be no misguided haste, but a continuous march toward the completion of the work.

A few customary repairs which may be easily carried out in

even the most meagerly equipped repair shop are here taken up and described by way of illustrating the correct method of procedure as compared with that in which the inexperienced man would go about the same work. A gasket is to be fitted, for example, between the cylinder block casting and the crankcase. The leakage between these two castings has been detected by a wheezing sound, and then on inspection the driver notices signs of oil having leaked through the joint. It is decided to replace the gasket, so the bolts which hold the cylinders in place are removed and the castings pried apart by means of a fine chisel lightly tapped upon with a mallet. This will disclose the crankcase after the cylinder castings have been lifted clear of the pistons and the same allowed, along with the connecting rods attached to them, to rest gently against the edge of the casting. The pistons are then removed from the connecting rods, leaving them in the position shown in Fig. 1. The method of removal will depend entirely on the manner in which the wrist pins are fitted. If it is easier to remove the caps of the connecting rods from the crank end, this may be done and the rods lifted out of the crankcase.

The old gasket is then thoroughly removed. This has to be done carefully by means of a scraper, as it will be found that the old one will adhere very closely to the metal surface and it will require the application of considerable force and a like amount of the proverbial elbow grease before this part of the work can be declared finished. The surface of the metal is then filed until it is entirely clean and bright when it is ready to receive the new gasket. If the cylinders are cast in pairs the



Fig. 2—Illustrating the method of filing the burr from clutch key

gasket is better when made in two pieces for a four-cylinder motor, as shown in the illustration. In other words, each block of cylinders should have a separate gasket. The new gasket will be bought accordingly in pieces, which are large enough to cover the parts to be fitted. It is first cut to the approximate size and allowed to rest upon the bolts which project as shown. The hammer is then called into service and a few light blows are dealt the material above each bolt until an impression has been made which will accurately determine the relative position of each. During this time the gasket is not allowed to shift its position. It is then removed and the holes for the bolts are cut in the positions shown by the marks which were impressed during the hammering. A slight allowance in size is made in the hole so that it will clear the bolt all around, thus taking up any inaccuracy there may be in centering.

After the holes for the bolts are cut in the gasket material it is slipped down over them until it fits flush against the surface of the metal to which it is to be fitted. It is at this point that the novice is often puzzled. Two holes have to be accurately cut, which will be of the same diameter as the cylinder and accurately centered in relation to the bolt holes. The amateur will often betray himself by starting to work with a rule and compasses. This, however, is not necessary; the correct and shortest method of procedure is to use the same method as that employed in cutting the bolt holes, that is, by means of the hammer. The gasket is tapped gently around the edge of the circle and around the outside where it is to be cut when finished; when removed it will be seen that the bounding edges of the gasket will be clearly defined and that the actual cutting will be easy.

In fitting keys the matter of experience again enters into the question to a large extent. Fig. 2 illustrates the act of removing the burr from a clutch key which was taken from the clutch as shown in Fig. 3. In removing irregularities from metal care should be taken that a bad fit does not result due to having filed away material in such a manner that the part no longer fits tightly. This is especially so in the case of a key held in the manner illustrated in Fig. 4. The other key shown above is fitted with two pins which keep it in the correct relative position. In fitting the key shown in Fig. 4, if it is desired to have the gears placed upon the shaft in a certain relative position, the shaft may be set in the vise as shown. The gears are then slipped over the shaft, the key inserted and hammered into place.

Besides the repairs mentioned there are numerous others



Fig. 4—Method of driving key into keyway when it is desired to hold gears in correct relative position

which will present themselves from time to time embracing every part of the motor, chassis and even the body of the car, until the owner will become so thoroughly acquainted with the various parts that, except in case of unlooked-for accidents, the matter of upkeep will resolve itself into a mere matter of schedule. Parts will need replacement from time to time on the best of cars, but with the care which a man who likes the work will give his own car the life of every part may be prolonged.

Whatever the work which is carried on in the garage the owner will find that the arrangements which were made in building it will always, so far as convenience goes, be a factor in the economical upkeep of the car. The finish on the body of the car is always more or less a matter of pride with the owner, no matter in what part of the country he may live. In the case of one who lives within the confines of the city or very close to its borders this upkeep of finish is a very important item. Mud may do a large amount of damage to a car, and here again the danger from this source may be practically eliminated by care and foresight. The only care really required is to take the mud off before it has time to harden. If the mud has once hardened and is then broken off, it will be found that the varnish has evidenced a penchant for adhering more strongly to the mud than to the body of the car. If a mild stream from a hose is turned on the car before the mud has hardened the deleterious effects will be entirely prevented and the life of the finish materially increased. A point to remember is that the temptation to turn the nozzle so that a hard stream will be projected against the delicate surface of the car must be overcome. It is true that the mud and dirt will come off much more quickly under the influence of this sort of stream, but the varnish will do the same, and hence care must be used.

Soft water is better than hard not alone for cleaning a car, but for the circulating system and the radiator. It is for this reason that many wise automobilists are fitting a rain-water trap to their garages, thus storing sufficient water for these purposes. The radiator should be washed weekly by allowing the engine to run for about three minutes with a soda solution in the water circulating system. Clear water is then run through and drained once and the system refilled.



Fig. 3—Showing position of key in clutch. This key is fastened by two pins

Letters Answered and Discussed

Rubber Is Porous

EDITOR THE AUTOMOBILE:

[2,818]—I note in your issue of August 17 an editorial on the air pressure maintenance of tires. While I am not prejudiced in the matter, I am interested in the question of the maintenance of air pressure. While you have considerable to say against your correspondent's assertion as to the making of better tires you have absolutely nothing to say about a tire maintaining a constant pressure. Why not? I have had an experience similar to that of your correspondent. Where does the air go if the tubes are properly made, and why?

WILLIAM B. ELY.

Pittsfield, N. H.

Wants Combination Tool

EDITOR THE AUTOMOBILE:

[2,819]—Perhaps you could tell me in an early issue whether at any time since last January a combination tool of six or seven uses has been noticed in THE AUTOMOBILE.

C. F. G.

See page 1416, issue of June 22, 1911, and page 241 of the issue of January 19, 1911.

Not Enough Clearance

EDITOR THE AUTOMOBILE:

[2,820]—In order to increase the clearance of my car I wish to raise the springs a considerable distance above the live rear axle. I am not quite sure as to the manner of proceeding with the work, and I would esteem it a great favor if you would give me directions. I am a subscriber to your paper and follow the discussions with great interest.

OLD SUBSCRIBER.

Grand Rapids, Mich.

A block of fiber of the required thickness may be inserted as shown in Fig. 1. The block is placed upon the spring plate and the bolts passed through as shown. Care must be taken in this work that a good fit is made.

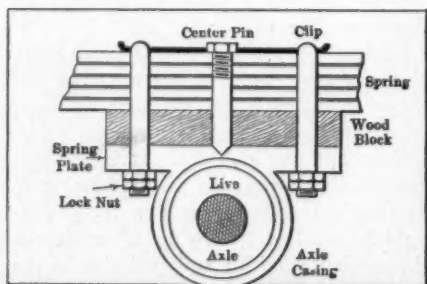


Fig. 1—Showing method of inserting block of wood to increase car's clearance

The Editor invites subscribers to communicate their automobile troubles and personal experiences, stating them clearly on one side of the paper. If the nature of the case permits, send a sketch, even if it be rough, in order to assist to a clearer understanding. Each communication will receive attention in the order of its receipt, if the writer's signature and address accompany it as an evidence of good faith. If the writer objects to the publication of his name, he may add a nom de plume.



Engine Vibrates

EDITOR THE AUTOMOBILE:

[2,821]—As a reader of your magazine I take the liberty of asking your opinion on a problem which confronts me, my experience not having been sufficient to place the trouble.

My motor truck engine is a four-cylinder, 28-horsepower type. The cylinders are cast in pairs; three-bearing crankshaft timing gears in front; flywheel fairly heavy; cone clutch; double ignition;

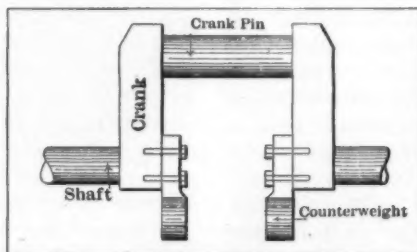


Fig. 2—Method of attaching counterweights in order to balance motor

double spark plugs in double caps on left (intake) side; exhaust on right side; extra heavy crankcase. The engine runs very fair at a medium speed, but when running, say, 30 miles per hour the vibration is terrific. Will you please give me your idea of the trouble?

LELAND A. KING.

New York City.

The engine is probably balanced well enough at low speeds, but when the piston speed increases the forces set up are not properly met. A plan which may be tried is to bolt counterweights on the crank as shown in Fig. 2. The weights should be carefully fitted in order to avoid lost motion, as the result would be a knock, very likely something worse. In fitting the weights take out each connecting rod with piston and rings and weigh them. If there is one which appears lighter than the rest favor that with the weights, which should all be the same shape and fitted on each crank. The gear ratios may not be suitable for the engine speed so that when the car is traveling at 30 miles per hour as you state the engine is really racing.

Jerky Rim Motion

EDITOR THE AUTOMOBILE:

[2,822]—Being a subscriber to your paper, I take the liberty of asking a few questions.

(1) I find that when I am driving my car below 20 miles per hour the motor runs with a jerky motion. I have cleaned the air valve and have the right adjustment; have filed and set the magneto points, and also inspected the spark plugs, but still the trouble remains.

(2) The transmission, instead of running with a steady noise, sounds as if it were jerking, although the car does not jerk.

(3) What harm is likely to come from having excessive oil in the crankcase?

J. E. HORTON.

Hartford, Conn.

Questions 1 and 2 depend, probably, one upon the other. Lift the hood of the motor and open the compression cock of one cylinder at a time to determine whether they are all firing properly, or if the trouble is confined to one of them. If it is confined to one cylinder close the gap between the sparking points of the plug a trifle, or test if the insulation is leaky. If the trouble is common to all the cylinders there is probably a shortage of gas at low speeds, or the magneto has become demagnetized.

In the event of too much oil in the crankcase the motor will smoke and carbon will be deposited in the cylinder. The deposit of carbon leads to a variety of troubles, chief among which are overheating and pre-ignition.

Automobile Improvements

EDITOR THE AUTOMOBILE:

[2,823]—I have a couple of improvements in automobiles, but don't know what to do to be sure of getting any profit out of them.

Would you advise me to patent them or to offer them to a maker of high-class cars?

I am an engineer and expert machinist.

N. W. K.

Aberdeen, Wash.

Patent first, then sell.

Carbon in Cylinders

EDITOR THE AUTOMOBILE:

[2,824]—I would like to have some information in regard to soot in my cylinders. I purchased a new car five months ago and I now find that the cylinders are

heavily coated with soot. Any advice you can give me will be greatly appreciated.

SUBSCRIBER.

Lancaster, Pa.

Use kerosene or any reliable decarbonizer in removing the deposits. It would be well to let the kerosene remain in the cylinder over night in order to thoroughly soften the carbon before scraping it off. Care must be taken not to scratch the cylinders.

Spark Plug Too Short

Editor THE AUTOMOBILE:

[2,825]—After reading your article on the position of spark plugs in a recent issue of THE AUTOMOBILE I took the cap and plug out of my car to see if it was right. I found that the plug did not go through by 3-16 of an inch. Would you kindly tell me what to do?

C. D. MCGEEHN.

New York City.

The difference in length can best be remedied by buying a longer plug, which will probably be too long. The difference in length on the longer plug may be taken up by means of washers above the spark plug cap.

Insert a Ball Thrust

Editor THE AUTOMOBILE:

[2,826]—The thrust on my clutch continually overheats. It is of the plain type and will not remain cool in spite of ample lubrication. Would you kindly tell me what to do? Any advice which you may give me will be greatly appreciated.

CHARLES PETERS.

Wading River, N. Y.

The installation of a ball thrust would no doubt eliminate the trouble. A type of ball thrust is shown in Fig. 3, and to have it installed it would be necessary to send the car to a well-equipped shop.

Clutch Jerks and Pounds

Editor THE AUTOMOBILE:

[2,827]—I am a subscriber to your magazine and would like to know what is wrong with my transmission or clutch. When running on high there is a jerking and pounding sound in the clutch or transmission. This sound is only when I am running slowly. By partly throwing my clutch out the noise stops to some extent. By giving the engine more power at the same time that I disengage the clutch the noise stops altogether. I have a cone clutch and it does not slip except on hill climbing.

J. R. B.

Paragould, Ark.

If the trouble is in the clutch and not in the ignition, as is very possibly the case, reface the cone with new leather.

The leather will in time rot if it has not been cared for in life. Test the alignment before going to the expense of a new leather.

Wants to Brighten Brass

Editor THE AUTOMOBILE:

[2,828]—Being a constant reader and a subscriber to THE AUTOMOBILE I am taking the liberty to ask a question. Do you know of any preparation or acid which will restore tarnished brass to its natural color? If you would publish the information in an early issue of the paper it would be greatly appreciated.

LOUIS ULLMAN.

New York City.

So far as we know the best method to rejuvenate brass which is covered with verdigris is to use what is commonly known as bath brick and oil plentifully backed up by a supply of elbow grease. If the verdigris coating is not too thick a good brass polish may be used; this will, however, only be of use in cases where the dirt has not penetrated the surface to any great extent. If the parts to be polished are very delicate, they can best be taken care of by a buffing machine.

Puncture-Proof Tire

Editor THE AUTOMOBILE:

[2,829]—I would like to get some information in regard to a device for rendering a tire absolutely puncture-proof. Has there ever been anything invented and put into practice which would render it impossible



Fig. 3—Showing type of ball thrust to take up thrust on a clutch collar

to puncture the inner tube of a tire? What are some of the appliances that are placed between the inner tube and the outer casing? Have they proved to be a success? I would be very pleased if you would furnish the information.

S. POLITZY.

New Orleans, La.

There have been various devices placed upon the market from time to time which have been very successful in prolonging the life of the tire. As far as we know none have made puncture absolutely impossible.

Piston Ring Sticks

Editor THE AUTOMOBILE:

[2,830]—Could you tell me how it would be possible to prevent the top piston ring from sticking, and how to release it without breaking it? The engine is a two-cycle air-cooled motor and is lubricated by putting the oil into the cylinder with the gasoline. I am using one quart of oil with five gallons of gasoline.

Any information you may give through your letter department will be appreciated.

Topsfield, Mass.

A. E. LAKE.

The reason the top piston ring sticks is probably because there is a thick deposit of carbon in the cylinder. Try using one pint of oil to six or seven gallons of gasoline in order to reduce the carbon deposit. There should be ample lubrication in this quantity of oil, as the proportion generally used is about one pint of oil to five gallons of gasoline.

There is no rough-and-ready method of releasing the ring from the piston. Remove the piston from the cylinder and allow the top ring to rest immersed in a bowl of kerosene over night. In the morning it will be found that the carbon deposit that has found its way behind the rings and perhaps along the sides of the grooves will have become soft and the piston ring can be removed in the ordinary manner. It stands to reason that the top ring will be more inclined to stick than the others as it is subjected to more heat than the others, which causes a quicker precipitation of carbon at this point.

The ring should be a good fit in the groove so that when it expands it will have just sufficient clearance to prevent it binding. If there is too much clearance the carbon easily finds its way behind and causes the trouble you complain about. Never touch the rings with a file. Use a surface plate on which a piece of fine emery cloth has been attached and, holding the ring in the hand flat, a slight rubbing will true the ring and remove all traces of carbon.

Internal Brake Broken

Editor THE AUTOMOBILE:

[2,831]—Would you kindly tell me what to do to repair my brake? The internal brake on one of the wheels does not work and rattles continually, while the other is in good condition. The trouble happened suddenly when a sound as if something had snapped in the drum took place. Since then I have been unable to manipulate the brake.

E. F. G.

New Orleans, La.

The accompanying cut, Fig. 4, shows an assembly of an internal brake. The trouble with yours may be determined by an examination. It is very possible that the spring has slipped from the shoe.

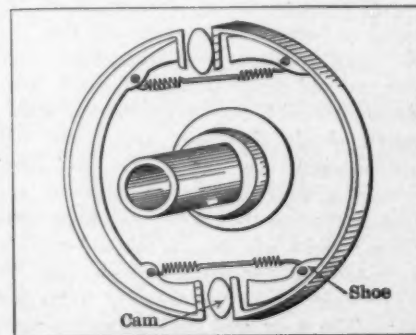


Fig. 4—Showing how the springs are generally held in an internal brake

My 1912 Automobile

Some Conceptions of What the Ideal Car Should Be

Six-Cylinder Car for \$1,500

EDITOR THE AUTOMOBILE:

The following is a description of a car which I think would meet my ideal for a 1912 design:

The motor should be of 40-horsepower, silent-Knight type, six cylinders, cast in pairs, and a gear-driven eccentric shaft. The bore would be about 4 1-4 inches and the stroke 5 1-4 inches. The engine should have large bearings and plenty of hand holes for inspection purposes. Crankshaft should be of electro-manganese nickel steel.

The ignition should be double, with high-tension magneto and batteries, adjustable spark. Lubrication, positive force-feed and splash. Carburetion, heated with automatic double jet. The drive should consist of a cone clutch, four-speed selective sliding gear set with a worm-gear drive shaft. Cooling water should be circulated by means of a gear-driven centrifugal pump, the radiator being square tube, efficient and durable.

The front springs should be semi-elliptic, long and wide, with oil cups. The rear springs should be three-quarter elliptic, fitted with oil cups, and of good length and width. The wheel base should be from 116 to 120 inches in length. Tires, 34 x 4 or 36 x 4 1-3 inches. The rear axles floating, the front axles of I-beam section. The brakes should be on the hub and transmission, the first set connected with the clutch. The universal joints should be on drive and cone shafts. The differential and drive should be adjustable and accessible, with ball bearing change speed gears amidship, of best material. Tie rod should be in front of front axle. Car should have brake eveners, torsion rods, twelve spokes in wheels all around, distance rods and the frame should be strong and well braced and contracted back of front wheels.

The equipment should be complete, with control parts on top of steering wheel, tire pump, self-starter, gas tank, oil side and tail lamps, acetylene headlights, horn, complete tool and repair equipment, good cleanable muffler with cut-out, automatic speedometer, shock absorbers, roller and ball bearings and everything that will tend towards a state of being dustproof and silent. All parts should be interchangeable.

The weight of the car should not be above 2,400 pounds when equipped, and the speed ought to be up to sixty miles per hour. The gear and brake handles must be in easy reach, and the steering so arranged that it is possible to take up lost

motion. A price list of parts should accompany the car, and prompt repair service should be made a feature. The automobile should be made by a concern who intends to stay in the business. A neat appearance should be made an object, the car being clean-cut and not loaded down with junk and dust catchers. I believe in a four-passenger torpedo body, with a place to carry all necessities, as well as a spare tire. Price, \$1,500 to \$2,000.

N. T. G., Md.

Turbotsville, Pa.

A Rational Buyer

EDITOR THE AUTOMOBILE:

After several years of experience with cars of different makes ranging from 31-2 horsepower to nominally 100 horsepower, the ideal car of my choice would be one of approximately 25 horsepower. I consider that it is possible with a car of this size to do anything that a car of 50 horsepower or more can accomplish, and, what is more, the reduction in weight would materially assist in the keeping down of tire expense. The motor should be a bloc motor either of the best design of poppet valve or with some accepted valveless design. Perhaps I might have a slight inclination to the latter, as it is something new, and taking care of my car as I would of a thoroughbred horse, it would have all the attention lavished upon it that I understand this type of motor requires.

The bore should not be more than 4 inches with a stroke of from 4 1-2 to 5 inches. The ignition system I prefer is a plain straight high-tension magneto in which the armature and pole pieces are capable of being rotated at the same time so as to give maximum power at all engine speeds. I would like the crankshaft to have five main bearings and instead of drilling it hollow for the entire lubrication I would feed a pipe to each cap of the bearings at its bottom side so that oil could be forced into the bearings under a pressure of, say, 5 pounds per square inch. The oil pump should be of the positive plunger type driven by an eccentric strap off the half-time shaft, but so situated that it would be readily removable. I would do away entirely with under-trays and have the sides of the crankcase cast with integral webs that would answer the same purpose. The clutch would be of the conventional cone type with the male boss made from pressed steel slotted at various points so that the leather would not be

compelled to fit tight against the entire face of the flywheel. The spring operating the clutch should be of the enclosed type with simple adjustment and ball thrust so that there would not be any thrust on the crankshaft while the motor was running with the clutch in.

Three speeds and reverse are sufficient for this size of car if properly designed, but I should prefer another gear for the fourth with an over-direct drive so that the direct drive would be about 3 1-2 or 4 to 1 on third speed. The final drive would be by full-floating live rear axle, the propeller shaft enclosed in a tubular casing terminating at the forward end in a forked joint. I should prefer worm drive.

As regards suspension it would depend upon the weight of the chassis, which in my opinion should not exceed 1,800 pounds. The dimensions of the chassis would have some bearing on the length of wheelbase. The chassis should be 80 inches behind the dash to the rear end of the frame and the radiator should be set 2 or 3 inches behind the front axle. With a monobloc motor the hood would not take up a lot of room so that the wheelbase would not exceed 110 inches. The car should be fitted with worm and block steering and be capable of turning in a 32-foot street. The gasoline tank would be placed in the cowl of the dash so as to leave the compartment under the driver's seat free for tools, and access thereto would be had by three doors, one at the driver's heels and one on either side of the body. The running boards would be entirely free from all encumbrances and the tires would be set in a sunken well behind the rear seats. The body would be a two-seated coupé with a leather top so that the passengers would be sitting amidships. I cannot see any advantage in left-hand control, so would have the control on the right side. Some people like to have the dash free from all fittings, but I would like to use it for as many as I could conveniently get there—not useless ornaments, but fittings that would tell how the oil and water were circulating, cylinder testing cutouts, etc., in short what the market afforded that would help in cutting down costs in upkeep. This may sound foolish, but it is better to spend a few dollars on a fitting that will positively save in gasoline consumption than to put money in the pockets of the oil company.

Some people want a car that will run without trouble, and so do I; but instead of kicking at the bills I am prepared to try to reduce them. One cannot expect a

manufacturer to tune a car up to the pitch that it will require no further work on the part of the owner. The running in of 500 to 1,000 miles makes all the difference, and to take advantage of the bettered condition it is necessary to do something oneself.

The price of the car with the necessary material for longevity would be about \$1,700 without extras, and if such a car were turned out and the advantages were placed before a discriminating public there is no reason why it should not meet with the same success as the cheap imitation of the same power.

M. P. H.

New York City.

Sleeve-Valve Motor

Editor THE AUTOMOBILE:

I am sending herewith a description of a car which, if it could be made for the specified sum, ought to set the world on fire. I do not know the cost of manufacturing Knight motors or the royalty required upon them, but I am sure that this car would prove a world-beater.

The engine should be of the Silent-Knight type having upward of 28 horsepower, a bore of 4 1/4 inches and a stroke of 5 1/4 inches. It should be equipped with dual ignition and lubricated by the mechanical force-feed system. The number of the cylinders should be four and they should be cast in pairs.

The car should be shaft-driven, with a cone clutch with cork inserts and a selective type gearset located in the center of the chassis.

The suspension should be on semi-elliptic springs forward and three-quarter-elliptic springs rear.

The wheels should be arranged so as to give an 118-inch wheelbase with 36 x 4 1/2-inch tires of the best quick-detachable demountable type.

The axles should be equipped with roller bearings, both front and rear.

The control should consist of clutch and brake pedals, emergency pedal and accelerator pedal.

The equipment of this car ought to be perfect and entirely complete, the electric lighting being by means of the Gray & Davis dynamo or the entire electric system by means of the Delco Company's product, including self-starter and all the other refinements accompanying the system. A good speedometer-clock combination must accompany the car and the switch equipped with a Yale lock. The rear springs should be fitted with shock absorbers to ease the motion of the car, and for the comfort of the passengers a foot rail should be placed in the tonneau as well as a robe rail. A wind shield and top should be provided. Adequate license holders must, of course, be in place.

The mechanical fittings throughout should be of the best, all oiling places convenient and grease cups large. The gasoline tank

should be equipped with a gauge as well as a lock. The tool box, located on the running board, should be provided with a full set of tools, including jack, etc.

This car ought to weigh when completed about 3,200 pounds, the body being of the five-passenger touring style, and should sell for \$2,000 to \$2,500.

K. P. HEINTZ.

Cumberland, Md.

Comfort the Main Idea

Editor THE AUTOMOBILE:

I have read with much interest your letters on the 1912 car, and it seems to me that many of your readers are wasting space on items of car construction that are not of real importance to the car owner. Two inches longer or shorter in the matter of wheelbase do not make any difference in the running of a car; one magneto is often as good as another and troubles with that adjunct are not very numerous. The big question that does concern every car owner is the matter of arrangements for carrying the tools and extra baggage. This is a department in which every 1912 automobile can be improved.

In carrying tools it is common to carry the tire repair outfit under the rear seat. This is very awkward. Supposing a valve leaks and the tire does flat, it is necessary to get the jack and tire pump from under the back seat. There may be three women in the tonneau and it may be raining.

The entire comfort of all three has to be upset. They have to get out of the car, because the rear seat cushion is so big and awkward that one cannot possibly get at the jack and pump until the cushion is removed. It is not very pleasant to ask women to get out of a car onto a muddy road on a cold, wet day. But once the women are out the task has but just begun. The jack and tire pump are generally the heaviest tools in the compartment and are usually placed at the bottom of it. In order to get them one must first take out some inner tubes, perhaps a side curtain or two (if they are not already in use) and there may be some other tools to remove before the jack can be got at. The net result is that everything, including the equanimity of the party, is upset simply in order to get a jack and a tire pump.

There is a remedy: Tire tools, including jack and pump, should be carried in the same place, and it should be in a convenient position. If there is no room on the running board a compartment should be provided under the chassis midway of the car on the left side. This may be just in the rear of the gearbox. Access can be had through the left tonneau door by means of a hinged door in the floor immediately inside of the tonneau door. Raising this door will not interfere with the tonneau passengers, and it is as convenient a place as can be found.

F. J.

Elgin, Ill.

THE AVERAGE CAR

The invitation to our subscribers to describe their ideal 1912 car has struck a popular chord. The responses show a wide appreciation of the salient points of car design and a knowledge of the points which tend to reliability and comfort. THE AUTOMOBILE hereby continues the invitation to its readers to mail in their conception of the features which should be embodied in next year's car. The information given should include such points as:

Horsepower	Stroke	Drive	Front axle
Cylinder type	Ignition	Springs	Control parts
No. of cylinders	Lubrication	Wheelbase	Body features
Cylinders, how cast	Clutch	Tire sizes	Equipment
Bore	Gearset	Rear Axle	Price

In addition to giving these details the reasons for your points of selection should be stated concisely and clearly.

As a benefit in the matter of comparison some details of the average cars for 1911 are given below.

Each communication must be legibly written on one side of the paper only; it must be properly signed with the writer's full name and address, and if the writer does not wish his own name to appear in print he may request the use of any nom de plume.

Any reader desiring to make line drawings, showing details of his ideas of his car or some of its parts, is requested to do so.

Editor THE AUTOMOBILE.

DETAILS OF AVERAGE 1911 CARS WHICH WILL ENABLE READERS TO MAKE COMPARISONS IN DISCUSSING 1912 MODELS

	\$1,000 and there- abouts	\$1,500 and there- abouts	\$2,500 and there- abouts	\$4,000 and there- abouts
Horsepower	20.5	29.525	35	43.66
Bore	3.98 inches	4.19 inches	4.40 inches	4.875 inches
Stroke	4.12 inches	4.64 inches	4.98 inches	5.39 inches
Wheelbase	100 inches	114 inches	119 inches	124 inches
Front tires	31.4 x 3.3	33.1 x 3.8	35 x 4	35.7 x 4.27
Rear tires	31.4 x 3.3	33.1 x 3.8	35 x 4.1	36.7 x 4.55
Number of cylinders	Four	Four	Four	Four
Cylinder type	L-Head	L-Head	L-Head	T-Head
Cylinders cast	Pairs	Pairs	Pairs	Pairs
Ignition	Dual	Dual	Dual	Dual
Clutch	Disc	Multiple disc	Cone	Multiple disc

Little Bits of Motor Wisdom

Pertinent Pointers for Repairman and Driver

A series of short stories that will tend to keep the automobilist in touch with matters mechanical and otherwise—quick soldering jobs, the use of the dowel pin, necessity for methodical inspection, aid to selection of proper-size tires, how to calculate clearance in per cent., amount of vapor in air, etc.

SMALL SOLDERING JOBS—It very often occurs that the automobilist will reach the determination to do a small soldering job rather than send it out and suffer the delay which such a proceeding generally entails. With very few exceptions more disappointments have resulted from attempted soldering, all because a few trifling but necessary preliminaries were not observed.

The first and perhaps the most important precaution to be observed is that the parts to be soldered are absolutely clean. Not apparently clean, as that will never suffice, but thoroughly, mechanically and chemically clean. Every slightest particle of grease, dirt or rust, as well as any other foreign matter, should not only be carefully removed but kept away by means of an application of what is known as flux.

After the primary or mechanical cleaning has been accomplished by means of a scraper, file or alkali solution, or perhaps by all three, apply the flux immediately so that the oxide film cannot regain a hold on the metal. If a liquid flux is used the metal to be soldered should be first heated and then the liquid applied. If the flux employed is borax or resin in solution it may be applied to the metal before it is heated.

The parts to be soldered are then heated until they are of sufficient temperature to keep the solder at melting point for the length of time required to finish the work if the parts are fairly small; or in any case until a fair quantity of work is done. The correct temperature varies with the different materials treated and may only be well learned by actual experience or by watching the work of others. Very good

results will, as a rule, be obtained even by the novice if it is remembered that the metal should not be too hot. If the work is carried on at too high a temperature the oxides of the metal will form on the surface in spite of the flux and the result will be disastrous as far as a good soldering job is concerned. Sufficient temperature for the average work may be obtained with the ordinary blowpipe and candle flame shown in Fig. 1. In soldering large pieces the metal surrounding the part to be soldered will carry the heat away from the joint too rapidly owing to the high conductivity of metal; hence in a case of this nature it is necessary to use a kerosene or gasoline torch.

The solder itself performs the office of a metallic cement and is generally composed of tin, lead or a combination of both. It is placed upon the joint and smoothed down by means of the soldering iron or bit, which is of different materials, generally having a copper head. In soldering aluminum a pure nickel soldering iron should be used to avoid discoloration of the metal. Before starting to solder the bit is tinned with the solder to be used, or with pure tin. This tinning process lends much to the certainty of a good result and is carried on as follows: The bit is first scraped with a piece of emery or a file until all particles of the scale with which it will generally be found to be covered have been removed. It is then plunged into zinc chloride and heated to the working temperature, which must be below redness. A stick of tin is held against the bit and will be found to adhere to it if it is not too hot.

When determining whether a certain piece of work should be soldered or welded it must be remembered that the solder is not very strong so far as tensile strength is concerned and that while furnishing a very cheap and good connection a soldered joint is not to be depended upon where any great strains are to be endured.

CYLINDERS REQUIRE REBORING—The metal in the cylinder walls is too soft to stand continuous service. Designers desiring, in the first place, to have the weight efficiency as high as possible take advantage of the fact that white metal is dense, hard and strong. Gray iron, on the other hand, is

soft and is likely to be of varying texture. White metal in a cylinder is induced by so regulating the charge that it will take on the property technically known as "chill." This "chill" is not to a great depth in good cylinder metal, so that in order to preserve the white metal surface the finish must be restricted. It will be remembered that all finished metal is machined off, and what is wanted in completed cylinders is just enough finish to permit of making a smooth bore without cutting through the white metal coating into the gray iron texture.

USE OF DOWEL PIN—Where two surface plates are to be placed one upon the other

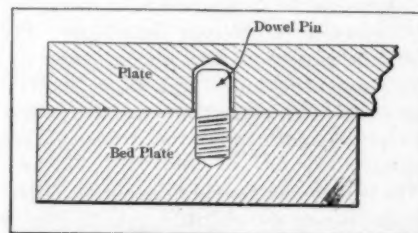


Fig. 2—Illustrating a dowel pin used to secure proper relative positions of two flat plates

and have always the same relative positions a pin known as a dowel is employed. The usual form of this pin is shown in Fig. 2, which shows a section through the two surface plates and the manner of fitting the pin. The bed plate is tapped and the pin screwed in for about one-half its length. The other plate is then drilled in the proper position so that there is no possibility of misplacing the plate.

In drilling the plate which fits over the pin care must be taken that the hole is not too large, as otherwise it would be possible for the plate to slip in any direction, and this would defeat the purpose of the pin. One pin does not entirely fix the relative positions of the two plates. It takes two to obviate any possibility of rotation. One pin would fix the position if there were guide plates on either side of the plates to prevent rotation.

DOGS MUCH USED—One of the useful appliances in the way of securing cover plates, manifolds, etc., in their proper positions is the dog. The form that this takes in automobile practice is shown in Fig. 3.

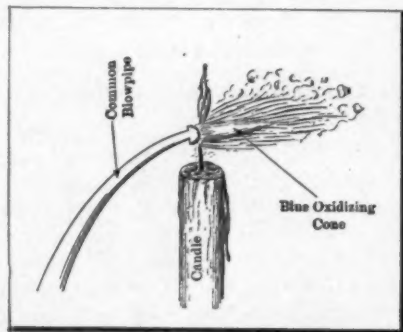


Fig. 1—Method of using ordinary blowpipe with candle flame for small soldering jobs

There are two faces which bear against the manifold flange or against the part to be held in place. The bolt passes through the center of the arm and into a tapped hole in the part to which the manifold is to be connected. There are endless variations to the shape of the dog, even at times taking the form of a flat plate, but the purpose fulfilled is the same, namely, that of holding various pieces of metal in place, which it would be unsuitable to hold by means of separate bolts. Since one bolt is performing the duty of several, it should be of sufficient strength to sustain the strains to which it will be subjected in this case; therefore the diameter should be relatively large.

From an inspection of the illustration it is evident that the dog will be subjected to a large bending stress, and hence will have to be of strength in this direction where any strain is to be placed upon the bolt. A permanent set in the dog would result in a leaky joint since the faces would not bear equally against the flange.

METHODICAL INSPECTION NECESSARY—Even the latest convert to the world of motoring recognizes the necessity of an occasional tour of inspection about the various parts of the car. Inspection in itself, while a *sine qua non*, is not sufficient to fully determine the fitness of the

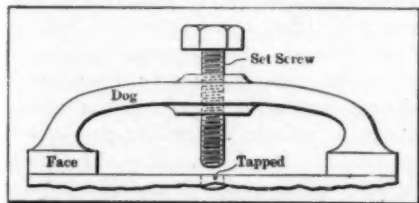


Fig. 3—Type of dog often used in motor construction to hold manifolds in place

car on all occasions. The motorist should observe a certain routine which will suggest itself by experience or preference, rather than make a random inspection which, while it may accomplish the desired end ninety-nine times out of a hundred, will be sure to result in the overlooking of some important detail sooner or later.

A good method to pursue, for the man who owns his own garage and enjoys the work which must be done about the car, is to post a schedule on the wall of the garage. Oiling charts are generally furnished by the makers of the car with directions as to how often each part is to be lubricated and what sort of grease or oil to use. Follow this advice closely and remember that a new car requires more oil than an old one. A wiring diagram is also a valuable adjunct, and will aid the motorist to a large extent in his occasional survey of the car ignition system.

A list of parts which are apt to become clogged may be also made up and will consist of the gasoline piping, water jacketing, radiator, carbureter needle valve, etc. The weekly washing-out of the radiator with

soda solution will obviate the dangers of scale. Leaks, knocks and squeaks must be sought for and remedied as soon as they appear, always remembering that where a repair is of a temporary nature it should not be allowed to remain long without being replaced by a permanent one. After some experience has been gained the habit of methodical inspection will be deeply ingrained and the rapidity of the work will be markedly increased.

TO SELECT THE RIGHT SIZE OF TIRE—The first point to take into consideration is the weight of the car, and this is a matter that seldom occurs to the owner. By weight is meant the complete weight of the car loaded with full equipment of passengers, tools, luggage and full tanks. Even before the question of sizes of tires is considered this should be found out and a certain margin for safety allowed in case additional weight is carried from time to time.

The way to ascertain the weight is to place the front wheels on the scale first and the rear wheels afterward to find what weight is carried on each axle. This amount halved will give the proportion of the total weight each wheel has to carry.

The following table shows the weight a given size tire is made to carry and the pressure to which it should be inflated:

Diameter of tire in inches	Maximum allowable weight on wheels	Air pressure in pounds per square inch
2 1-2	225 pounds	50
3	350 "	60
3 1-2	600 "	70
4	750 "	80
4 1-2	1,000 "	90
5	1,000 "	90 to 100
5 1-2	1,200 "	100 to 105

If the flexure of one tire is greater than another for the same pressure it is as well to reduce the pressure of the highest to correspond with the other to equalize the flexures. There is danger of extra tire depreciation if one tire is blown up stiffer than another.

CUSHIONING THE BODY.—In order to take up the shocks which will be transmitted through the office of the chassis to the body of the car, a rubber insert is often placed in such a way that there is no direct contact between the two. A manner of installing the rubber cushion is illustrated in Fig. 4. The angle iron bracket which takes all the weight is equipped with a box-like cover which contains the rubber insert. The box is continued to a sufficient height to hold the body in position besides holding the rubber. This box is shown to be cut away in the illustration in order to indicate the relative positions of the parts.

WEIGHT OF VAPOR AIR WILL HOLD AT 32 DEGREES FAHRENHEIT—Primarily the weight of any vapor that air will hold will depend upon the temperature to which it is raised, and the higher the temperature the greater

will be the volume, and the lower the weight of the air. A state of saturation will follow for each temperature, and while the volume of air will increase with increasing temperature, thus decreasing weight, so that the capacity of the air for vapor will increase. The weight of vapor per hundred pounds of air, at different temperatures, may be determined in the manner as follows:

$$W = \frac{62.3 \times E}{29.92 - E} \times \frac{29.92}{p}$$

When,

E=elastic force of the vapor at the given temperature, in inches of mercury.

p=absolute pressure in inches of mercury, = 29.92 for the pressure of the atmosphere as ordinarily taken.

w=weight, in pounds, of vapor, for complete saturation, at the given temperature, at which elastic force is determined.

The vapor-carrying ability of the air is of the utmost importance in connection with carburetion, since, if the air is not in a state to hold vapor of gasoline to the desired extent, the results will fall off accordingly. The accompanying table will serve to render comparison potent, as well as to clearly indicate the reasons why atmospheric conditions influence the performance of cars in practice.

Capacity of Atmospheric Air for Vapor at Different Temperatures.

Temperature in degrees Fahrenheit	Pounds per cu. ft. dry air	Pounds of vapor in one pound of air	Weight in pounds cu. ft. saturated air	Weight in pounds cu. ft. vapor in air	A/V
32	0.0807	0.00379	0.0802	0.000304	263.7
42	0.0791	0.00561	0.0784	0.000440	178.18
52	0.0776	0.00819	0.0766	0.000627	122.
62	0.0761	0.01179	0.0747	0.000881	85.
72	0.0747	0.01680	0.0727	0.001221	59.5
82	0.0733	0.02361	0.0706	0.001667	42.3
92	0.0720	0.03289	0.0684	0.002250	30.3
102	0.0707	0.04547	0.0659	0.002997	22.

The ratio A to V clearly indicates the rate at which the air changes in its ability to sustain a vapor, and also the effect produced on the weight of vapor per cubic foot of the air. A close inspection of the table given above will also explain the great advantages of using preheated air for vaporizing the gasoline that is to be burned in the motor, as this air is able of absorbing a comparatively high amount of fuel.

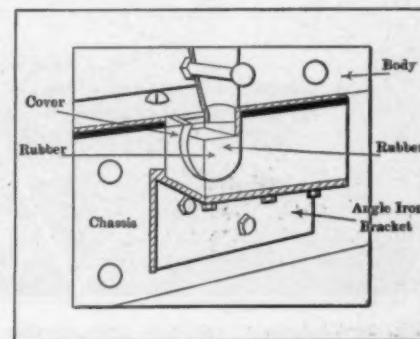


Fig. 4—How rubber insert is used between body and chassis to secure easy riding qualities

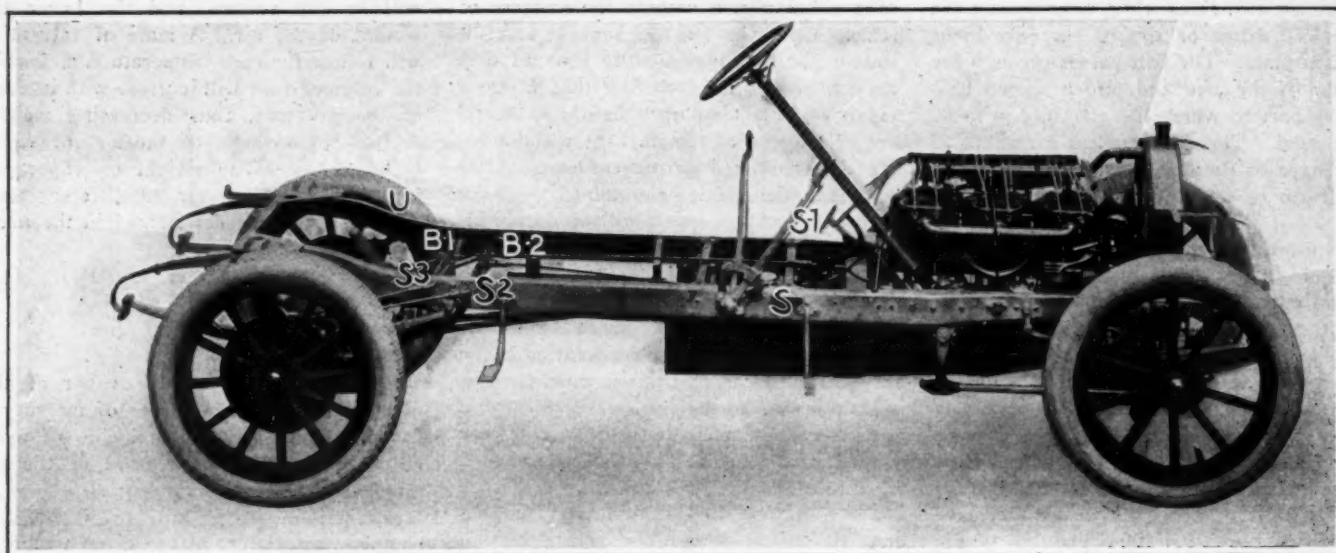


Fig. 1—General appearance of the Pierce-Arrow six-cylinder chassis

Pierce-Arrow 1912 Models

Few Material Changes in the Smaller Cars

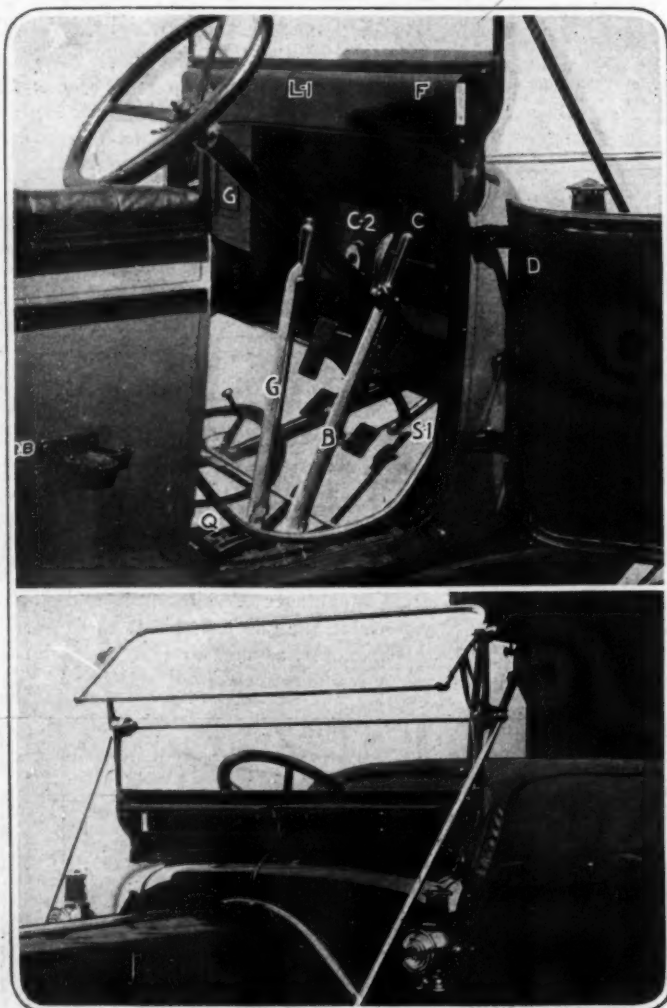


Fig. 2—All doors are made to open, showing how the levers are placed entirely within the body. The new ventilator can also be seen

Fig. 3—Showing the new type of windshield, the open flaps of the ventilator and the neat side lamps

TO place concisely before purchasers of cars the offerings of the Pierce-Arrow Motor Car Company of Buffalo for the ensuing season it is here proposed to deal with the various models separately in order to avoid confusion. But as a general introduction it may be mentioned that the new models are not characterized by any radical changes. The principal change of note is found in the largest model manufactured by this concern.

For the sake of clearness it is necessary to refer to the dimensions of last season's models to enable the reader to draw a comparison with the new model. Much discussion has taken place in technical circles relative to the rating of gasoline motors in the endeavor to come to some tangible solution of the present puzzling situation. The tendency of the last year or two among designers seems to point to a penchant for the long-stroke motor, and an instance of this is found in the new "66" Pierce-Arrow. The past season's model had a bore of 5 1-4 inches with a piston travel of 5 1-2 inches. According to the accepted rating adopted some years ago this would give a horsepower rating of 66, but in the new motor the bore has been decreased by 1-4 inch to 5 inches and the stroke increased by 1 1-2 inches to 7 inches, and according to the formula the motor would appear to be less powerful. This is due to the fact that the piston travel is taken at 1,000 feet per minute irrespective of stroke. A more rational manner of viewing the situation is by considering the comparative piston displacement, which is in reality the main factor. The piston displacement of the new model is 770.67 cu. ins., while the displacement of the model of last year was 714.36, which shows an increase of 56.3 cu. ins. for the 1912 motor.

The piston travel per minute being presupposed, according to the formula, to be 1,000 feet per minute, it is interesting to see how this compares with the motors under consideration. The 1911 motor required 1,143 revolutions per minute to attain the above-mentioned piston travel, but in contrast to this the new long-stroke motor with its 7-inch stroke requires but 857 revolutions per minute to accomplish the same piston travel. Block tests of the new motor have been carefully carried out and show that the new motor has an advantage of 15 horsepower over last year's model at 1,000 revolutions per minute.

The general appearance of the different models of Pierce-Arrow cars as far as it relates to the chassis details can be seen by referring to Fig. 1, which shows the right side of the chassis.

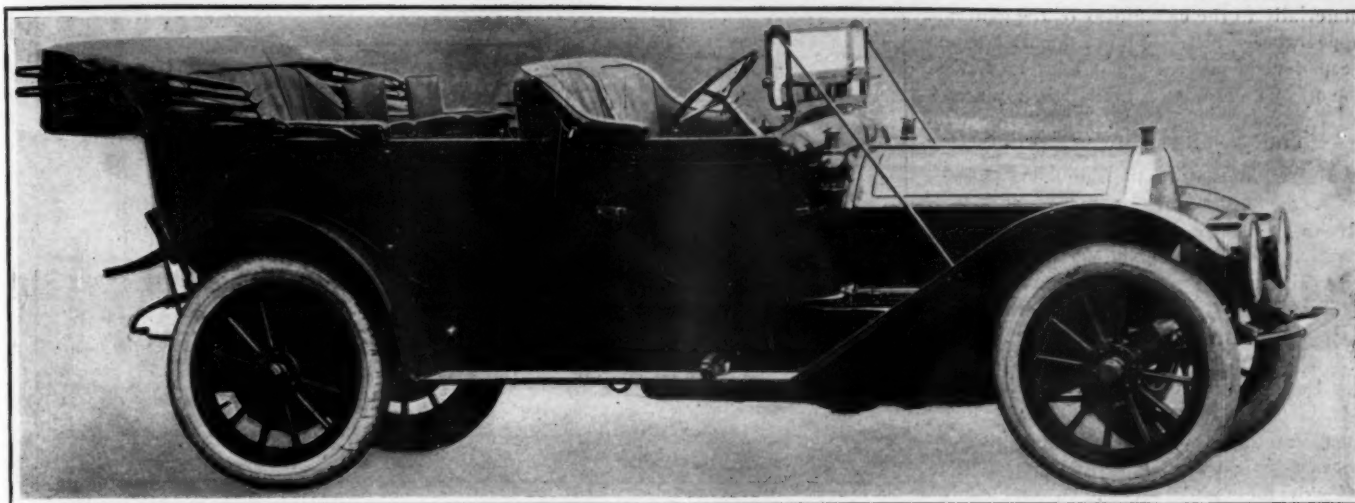


Fig. 4—48-horsepower seven-passenger touring car with fore-door flush-sided body

The rear end of the chassis is given a slight up-sweep to take care of the three-quarter elliptic suspension, and the method of controlling the brakes is also shown.

The rods from the pedal or side lever pull upon the cross bars B1 and B2, which are attached to the side rods that operate the brakes by means of universal-jointed swivels, S2 and S3. As the brakes may not both have the same adjustment the slots in the chassis are cut sufficiently long to allow the cross bars to pull more on one side than the other if necessary to permit of equal braking effect on both of the rear wheels. With the present tendency for flush-sided bodies, which necessitates a wider framework for the upper structure, the side runners of the body rest upon the brackets S and S1 shown in Fig. 1. The method of shackling the front springs can be seen as well as the method of supporting the cross-arm of the steering after leaving the box beneath the chassis frame.

Figs. 2 and 3 show two interesting innovations to this line. All doors are made to open in the manner shown in Fig. 2, and the new method of placing the levers B and G entirely inside the body is also depicted. The body is wider both front and rear, thereby giving greater comfort to the occupants of the tonneau.

The dash is formed in the shape of a cowl, the inside of which is fitted with closets provided with locks to facilitate the storage of such parts as may be most often wanted, such as goggles, maps and the like. The spark coil for the supplementary ignition is placed between these two boxes in the manner shown and a new switch is provided thereon with a connection that gives both battery and magneto ignition at the same time. Alongside the coil is a lighting attachment which permits the gas headlights being turned on from the seat, the spark being furnished automatically.

A new glass front with a rain vision fold has been adopted and the new front and fenders are dished to give greater rigidity and are made of steel, the bolts and rivets not being in evidence. In order to maintain perfect ventilation without causing a draft to the forward compartment of the car a ventilator unique in design has been incorporated in all the open models. Fig. 2 shows the rear view of the windshield and it will be noticed that the lower part is fitted with a metal flap F in the center of which is a lever L1. This lever controls two windows which are plainly shown in Fig. 3. The air that passes through these windows, when open, is caused to descend to the lower part of the front compartment, owing to the shape of the flap inside the body, which has the effect of expelling the heated air that rises through the floorboards. Another new point in next year's models may be seen by referring to Fig. 3, which shows the new side lamps that have been adopted.

The general lines of the three models of Pierce-Arrow cars

are almost identical as far as appearance goes, the variations in dimensions constituting the main differences.

The 48-horsepower, seven-passenger touring car can be seen by referring to Fig. 4, which shows very clean design. Inside guards are fitted to the mudguards both front and rear, and the valances fitted between the chassis and the running boards add

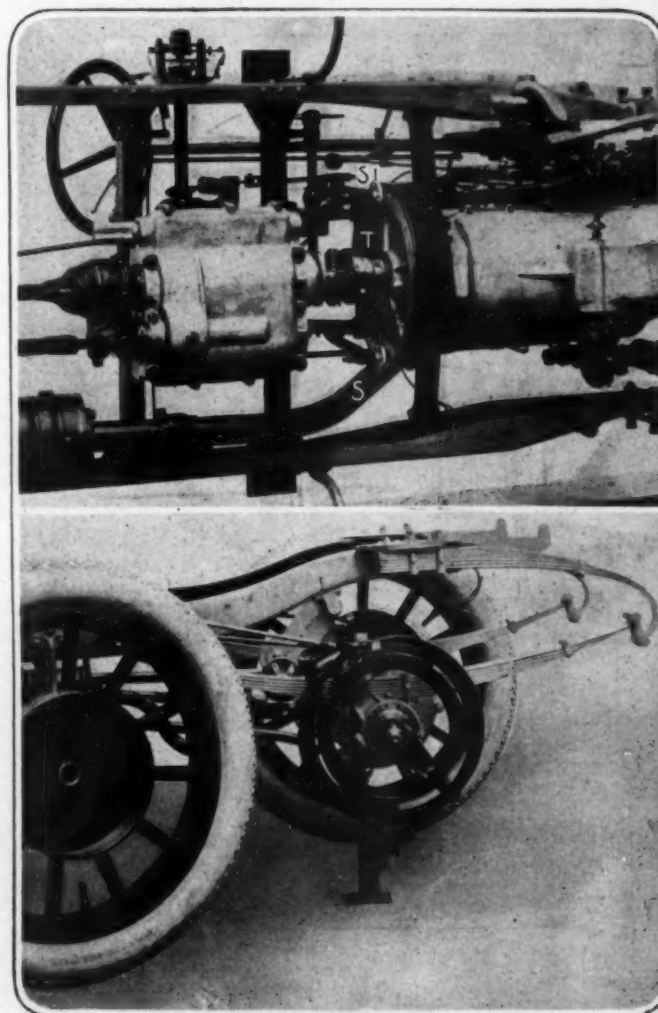


Fig. 5—View of the Pierce-Arrow chassis from below, showing the new clutch stops and the brackets on which the body rests

Fig. 6—Suspension of the rear of the chassis which has been slightly modified, showing the braking mechanism

materially to the cleanliness of the general appearance. Exterior door handles have been done away with, small levers set in the top of each door taking their place.

The 36-Horsepower Model

The engine will be the same size as last year, the bore being 4 inches and the stroke 5 1/8 inches. Referring to the illustration of the motor shown in Fig. 9 the general arrangements of the left side of the motor will be seen. The motor is supported by the cross members C and C1, which are attached to the crank chamber by long through bolts, the upper lips of the supports resting upon the side members. The cylinders are cast in pairs with T-shaped heads and the internal details of the motor are shown in Figs. 8 and 12.

The train of half-time gears is placed in front of the motor and enclosed in an aluminum housing. The shaft that drives the pump carries at its forward extremity immediately after leaving the casing a gear which is used to drive the air pump P shown in Fig. 9. The gears G1 and G2 are caused to mesh by the use of a small lever not shown in the illustration. A sectional view of the air pump is shown in Fig. 8. The water flows to the intake pipe of the centrifugal pump P1 and is forced to the bases of the cylinders at the points W1, W2, W3, a universal joint U of the Oldham type being inter-

posed in the driving shaft to take care of alignment and permit of easy assemblage. The rear end of the pump shaft is extended through the casing of the pump and is fitted with a tongue joint C2 so that an electric generator may be driven direct where such and outfit is desired. The crankcase has four bosses, B1, B2, B3 and B4, already provided with bolts so that the generator can be bolted on. The cylinders on this and both of the other models will be tapped for S. A. E. standard spark plugs, 7-8 inch in diameter and 18 threads.

The internal and external brakes, the design of which can be seen by referring to Figs. 6 and 7, are much larger, the brake drums being 14 inches in diameter and 3 inches wide. The rear springs have less arch, the upper portion of the half springs being clipped on the under side of the gusset plate instead of on the top. The springs, being almost flat, constrain the rear axle to move in an almost vertical path, thereby eliminating the action of the brakes going on when the car bounces or when there is a difference of position owing to the car being loaded or unloaded.

Fig. 5 discloses a new feature on Pierce-Arrow cars for the coming season. In order to facilitate the changing of the gears two friction pads are fitted at S and S1 which form clutch stops checking the rotation of the male member of the cone clutch when this is withheld. A ball thrust collar T is used on all the new models and the transmission cover has had to be altered to accommodate the gear shift, which has been placed 2 inches inboard. The details of the gear shift are shown in Fig. 11, in which an interlocking device is seen preventing the engagement of the clutch with the gears half in or with two sets of gears in mesh at the same time. The shafts have been considerably

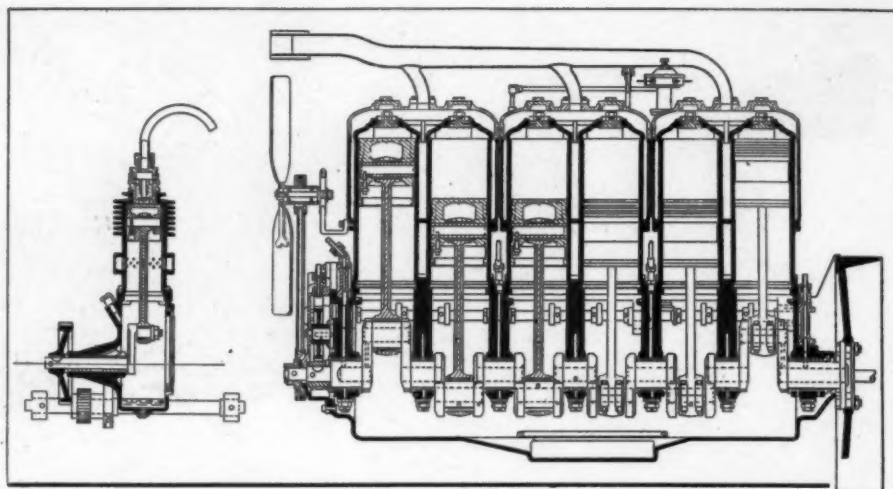


Fig. 8—Lateral cross-section of a Pierce-Arrow motor with seven-bearing crankshaft and the section of the air pump for tire inflation

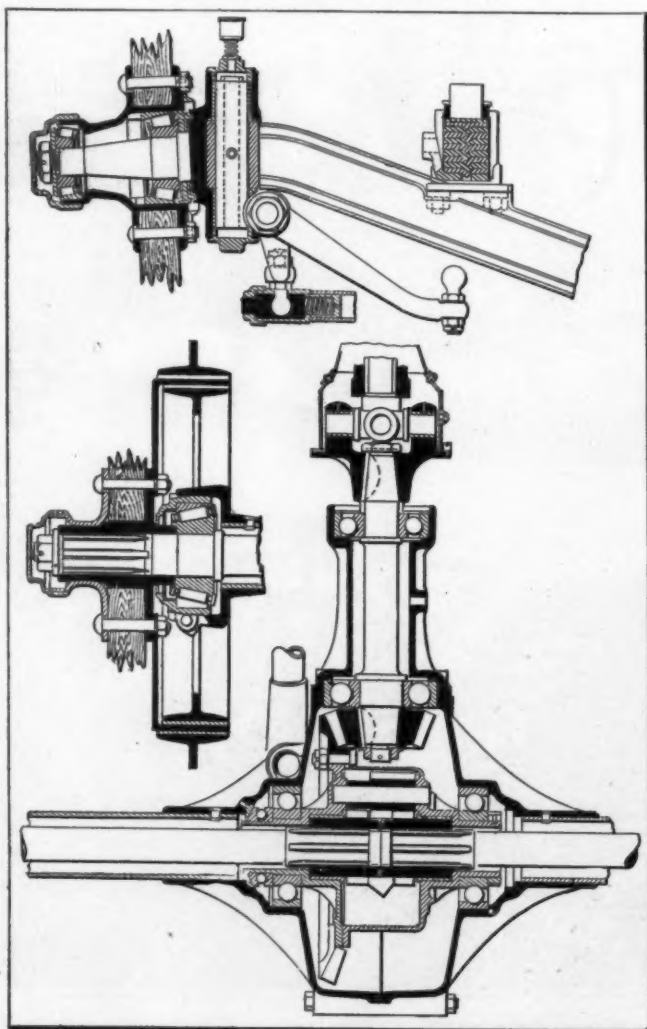


Fig. 7—Front and rear axle of the Pierce-Arrow, showing the details of the general assembly of the differential and front knuckles

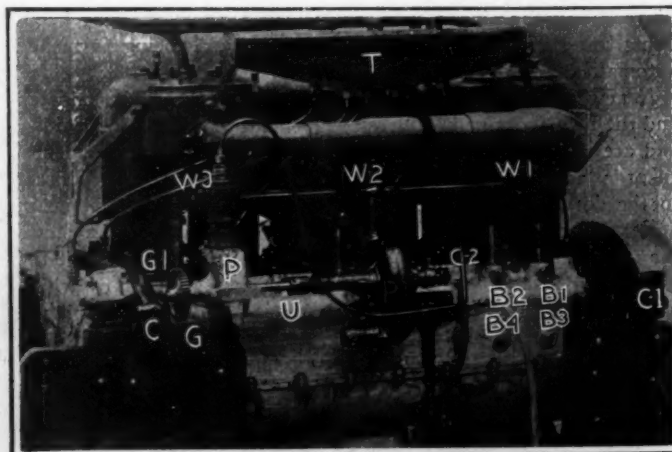


Fig. 9—View of the left side of the Pierce-Arrow motor, showing the air pump, water and oil pumps, lubricating oil tank and leads

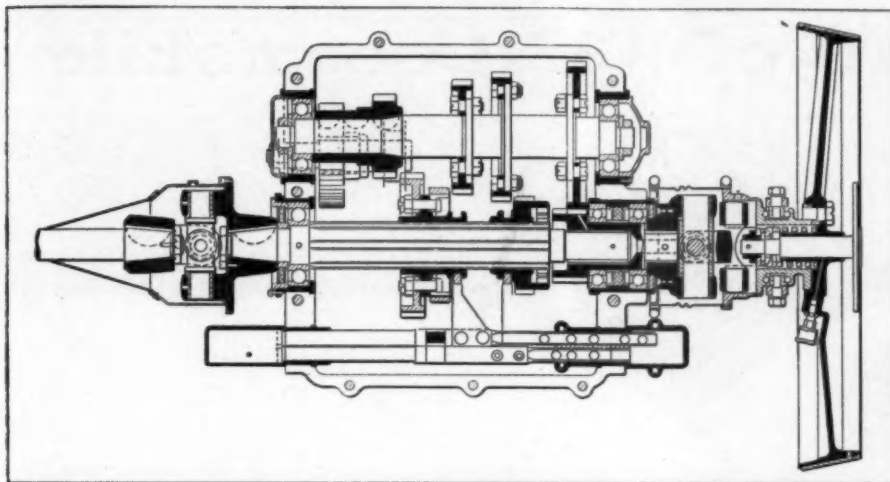


Fig. 10—Sectional view of the clutch and transmission assembly showing the method of assembling the parts

strengthened and the primary shafts on which the gears slide are milled with six feathers or splines instead of four as heretofore. The rear springs are 4 inches longer and have less arch. A gasoline gauge is fitted on the dash which shows at a glance the amount of gasoline in the 28-gallon tank.

The 48-Horsepower Model

The size of the 48-horsepower motor remains the same as last year, viz., 4 1-2-inch bore with a stroke of 5 1-2 inches. The general details are similar to the motor of the "36" in all essential features. Clutch stops are fitted in the manner shown in Fig. 5 and the same remarks that were made in respect to the transmission of the smaller car apply to this model also.

The internal and external brakes are 2 inches larger in diameter, and the faces are 1-4 inch wider. The rear springs are 4 inches longer and have less arch, and the half springs are attached to gusset plates in a manner similar to that which obtains in the 36-horsepower chassis. In other respects the chassis is identical with last year's models, but the bodies are entirely of new design. The general appearance of the seven-passenger touring car fitted to the 48-horsepower chassis is shown in Fig. 4. The rear seat of this body is 54 inches wide and 21 inches deep; the height from the floor to the top of the cushion is 16 1-2 inches. The distance between the back of the front seat and the back of the rear seat is 40 1-2 inches, while the width of the front door is 20 1-2 inches and that of the rear door 22 inches. New folding extra seats in the tonneau are provided with arm rests. The additional space inside the body adds to the comfort of the occupants without in any way spoiling the appearance, which is decidedly clean-cut, as may be seen from the illustration.

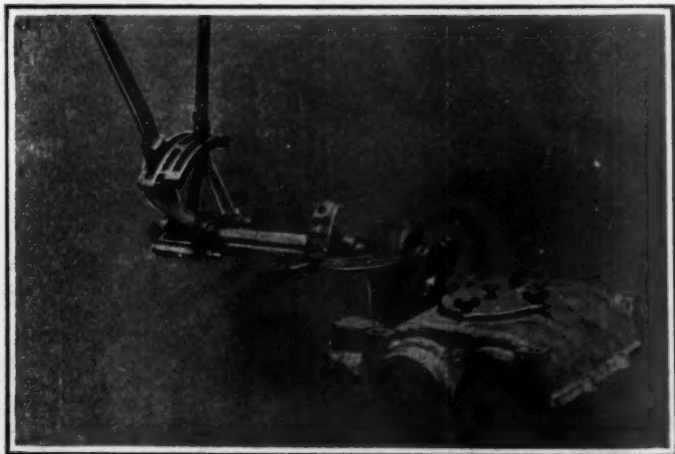


Fig. 11—View of the new change speed sector and gear shifting mechanism, including the interlocking device

An interesting point in the body design of the new models lies in the fact that the running boards have been cleaned and the battery box is now slung under the body, the tools having been placed in a compartment built into the apron.

The 66-Horsepower Model

Mention has already been made of the new motor in this model, and suffice it now to mention that the bore is 5 inches with a stroke of 7 inches.

Two features on all Pierce-Arrow models have been retained, viz., the seven-bearing crankshaft and the lubricating system with the tank placed above the cylinders in the manner shown in Fig. 9.

In the new model there will be used larger diameter live rear axle jackshafts with fluted ends for attaching to the driving wheels and compensating pinions. It

will be possible in this model only to withdraw the live rear axle without taking the casing apart after withdrawing the hub and unscrewing the caps containing the bearing on the ends of the rear axle case. The brakes are 2 inches larger in diameter and the faces are 1-4 inch wider.

As in the other models the rear springs have been lengthened 4 inches. The radiators and hoods on all three models have been made higher, the "36" and the "48" being 1 1-2 inches and the "66" 1 inch higher than last year.

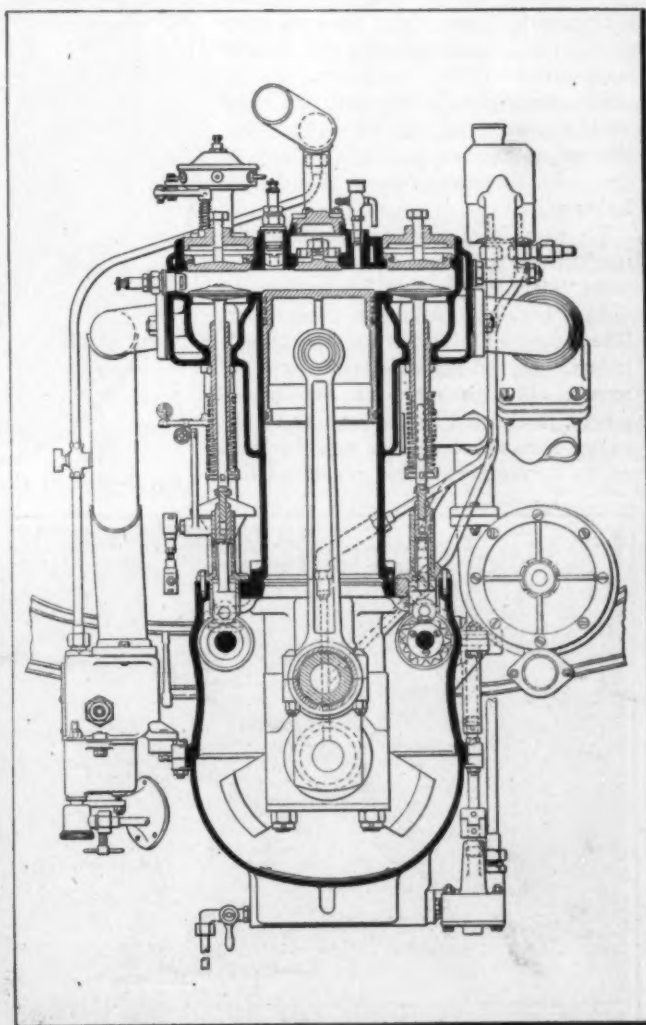


Fig. 12—Transverse section through the front cylinder of a Pierce-Arrow six-cylinder motor

Refinements of 1912 Locomobile

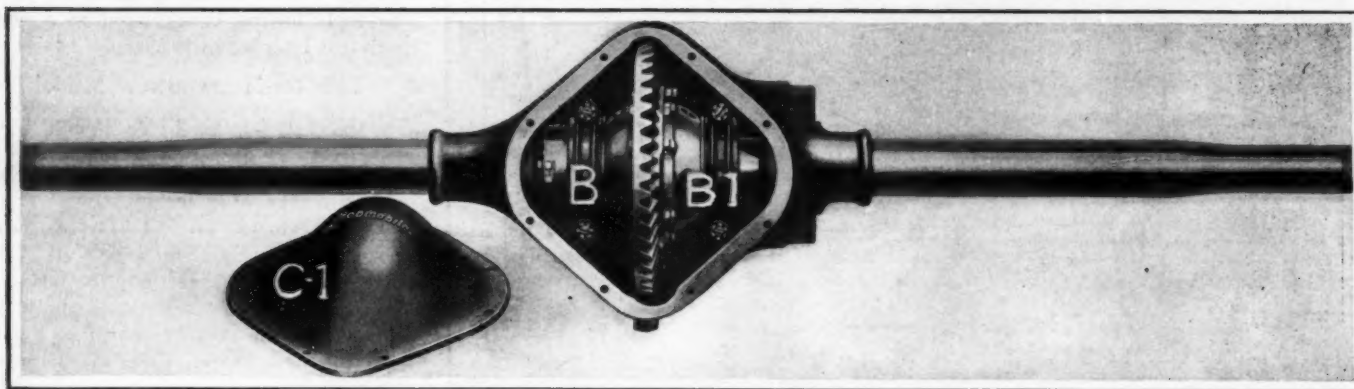


Fig. 1—View of the new live rear axle fitted to the Locomobile six with cover removed

WITH the exception of a few refinements, that would not be noticed by the casual observer, there has been no material difference in the new models of the Locomobile car, manufactured by the Locomobile Company of America, Bridgeport, Conn. The personal comfort of the occupants and the general appearance of the coachwork has received marked attention, with the result that the new models have been improved equally as regards the lines of the body, the interior finish and the upholstery.

To pass from the coachwork to the mechanical features of the car, the power plant of the 1912 Locomobile six differs but little from its predecessor. The same type of $4\frac{1}{2} \times 4\frac{1}{2}$ T-head cylinders, cast in pairs, is used, and the motor, although rated at 48.6 horsepower, is claimed by the makers to develop somewhere in the neighborhood of 65 horsepower. The crankcase has

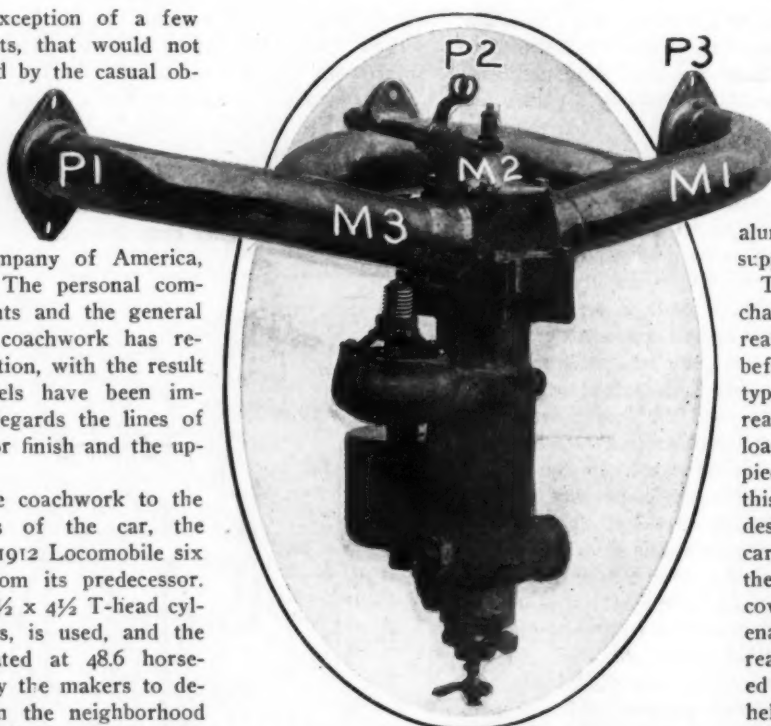


Fig. 2—General view of carbureter and manifold

been somewhat lengthened to accommodate slightly longer bearings for the pump and magneto shafts, and the attachment of the timing gears to their respective shafts has been modified. The magneto coupling has been enclosed in an aluminum cover to maintain a constant supply of grease to this part.

The most radical change of a mechanical nature is to be found in the rear axle and differential housing. As before, the live axle is of the floating type, which serves only to turn the rear wheels, carrying no part of the load. The axle housing is now a one-piece steel casting. In former years this was a two-piece axle. In the new design shown in Fig. 1 the weight is carried upon a single casting, whereas the large opening at the rear, ordinarily covered with an aluminum cover C1, enables the differential to be easily reached. The bearings, that are mounted on the extremities of the cage, are held in position by strap bars B and B1, which are secured by four bolts. By

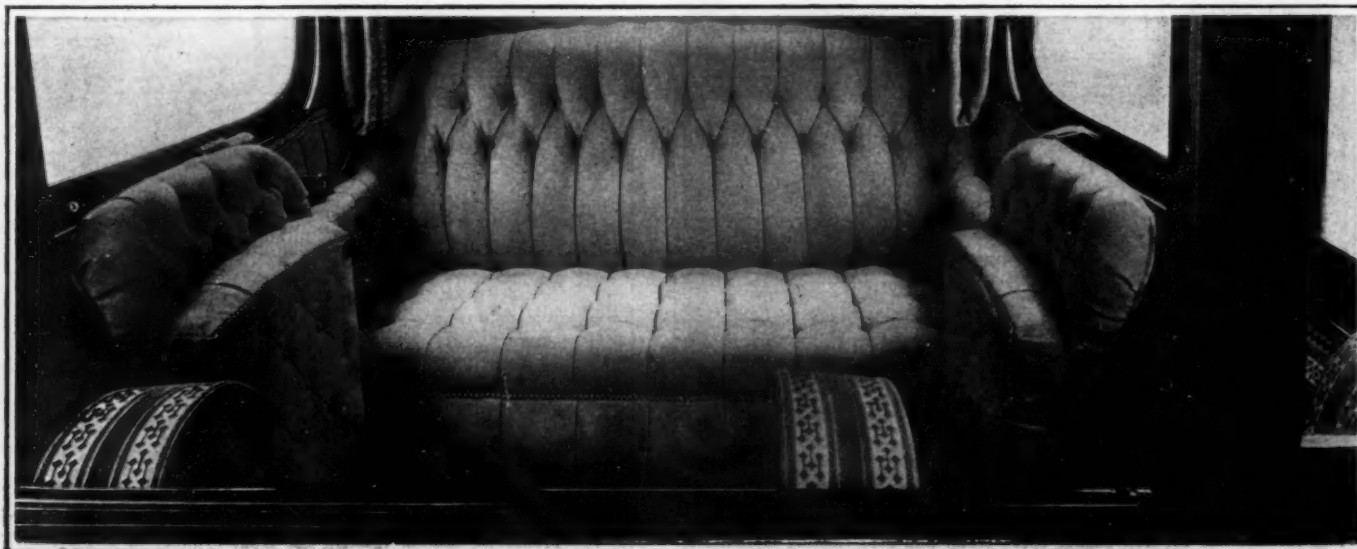


Fig. 3—View of the interior of the limousine, showing the upholstery and extra seats folded away

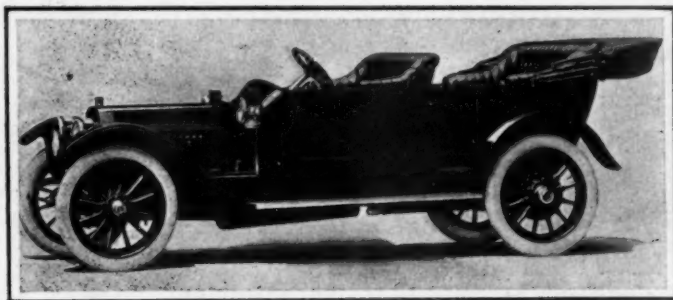


Fig. 4—Fore-door torpedo body to seat four passengers fitted to the Locomobile six chassis

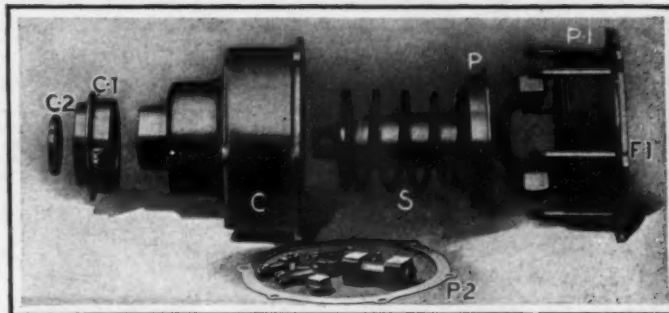


Fig. 5—Showing the various component parts constituting the Locomobile clutch

removing these bars the differential can be removed bodily from the casing after the axle driveshafts have been withdrawn sufficiently far through the axle tubes. Alloy steel tubes are pressed into the ends of the axle housing to form the weight-carrying portion of the dead axle. A pressure of several tons is used to force these into place, and rivets fasten tube and casing together.

The general appearance of both sides of the power plant of the six-cylinder motor can be obtained by referring to Figs. 13 and 14. Fig. 13 shows the exhaust side of the motor in which the exhaust manifold M is attached to a single port on each pair of cylinders. To heat the air before mixing with the gasoline an aluminum box B surrounds the manifold from which a pipe leads to the base of the carburetor. The water pump P takes the water from a large radiator placed in front of the motor and delivers it to two pipes P1 and P2. In order to maintain a steady flow to each pair of cylinders these pipes are attached to a central collecting pipe P3 so that the water passes to the cylinder bases W1, W2 and W3 at approximately the same pressure. One of the difficulties to be overcome in six-cylinder construction lies in the fact that each cylinder, or, as in the case of the Locomobile motor, each pair of cylinders, has to be fed equally both as regards cooling water and combustible mixture.

The use of spiral gears, made from chrome nickel steel, has been continued

for the timing gear wheels, with a slight improvement in the method of attaching them to the ends of the camshafts. Owing to the fact that the teeth are not parallel with the axis, large spiral gears when run under load produce a slight end thrust on the bearings. In other words the angle of the teeth creates

a resultant force which does not act in the plane of rotation of the gear. The method employed in the new models of the car under notice is to finish off the ends of the camshafts with large face plates flanged so as to coincide with corresponding recesses in the hubs of the gears. The gears are then attached to the flanges on the camshafts by means of four cap screws which have a continuous wire passing through holes drilled in the heads of each to prevent them from shifting as a result of the engine vibration.

The crankshaft is mounted on seven main bearings, B1, B2, B3, B4, B5, B6, B7, as may be seen by referring to Fig. 11, and the upper half of the crankcase which carries the bearings is made from rigid and heavy government manganese bronze, which is a feature of Locomobile construction. To the bottom of this crankcase is attached the aluminum pan shown in the lower half of Fig. 11. Therein is contained the main oil reservoir. A spiral gear at the rear end of the exhaust camshaft drives a vertical shaft which operates the rotary pump P4 in Fig. 13. The oil flows by gravity from the well in the motor to the pump,

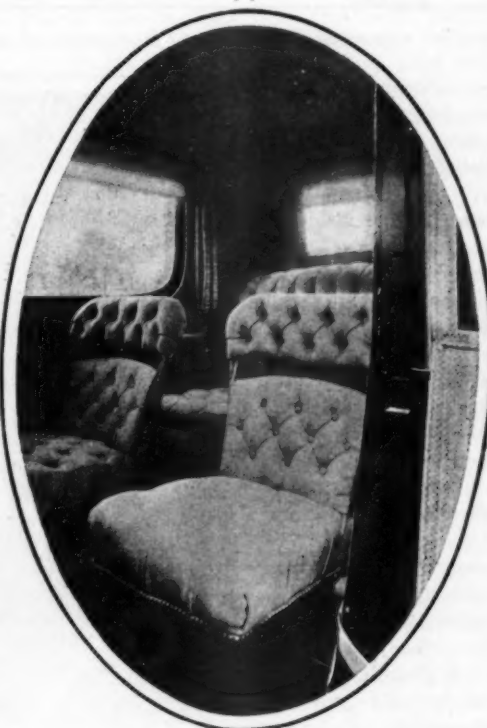


Fig. 6—View of the interior of the limousine, showing extra seats

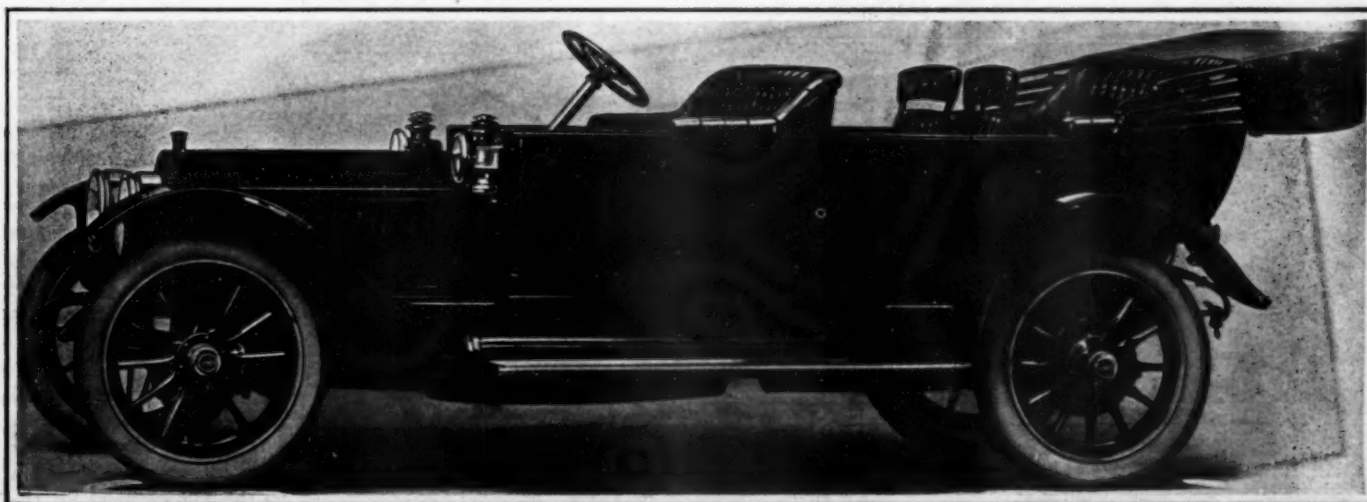


Fig. 7—General appearance of the new flush fore-door six-cylinder Locomobile seven-passenger touring body

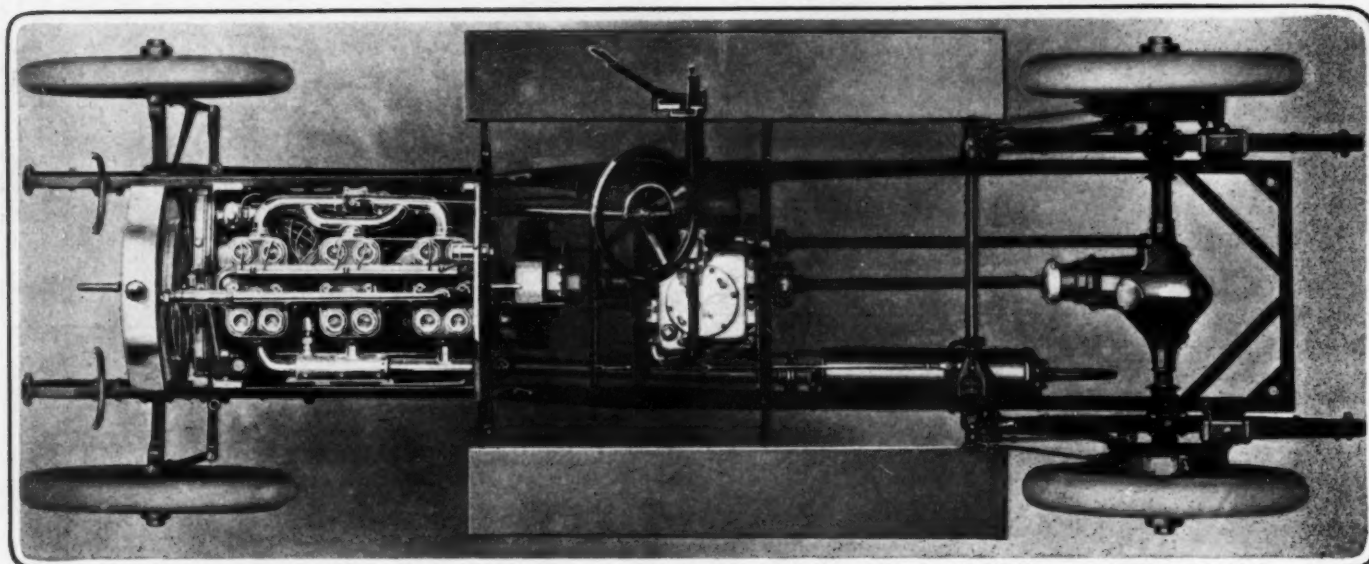


Fig. 8—Plan view of the Locomobile six, showing the arrangements of the various units

whence it is delivered under pressure to a T-connection. One end of this connection is attached to the main feed pipe O which passes along the side of the crankcase. Individual leads O1, O2, O3, O4 and O5, feed each crankshaft bearing as well as the camshaft bearings.

The second branch of the T connects with a pipe inside the base of the motor shown in Fig. 11, where the troughs T1, T2, T3, T4, T5 and T6, are situated. A hole in the oil feed-pipe keeps the troughs constantly filled with oil and the lower ends of the connecting rods being fitted with scoops, the oil is churned up sufficiently to lubricate the piston and cylinder. In order to prevent an undue amount of oil from reaching the cylinders, baffle plates are provided over the openings through which the connecting rods reciprocate. Inasmuch as the oil in each trough, into which the scoops dip, cannot exceed a certain depth, and as the baffle plates limit the size of opening through which the oil is sprayed, smoking troubles and their attendant consequences are minimized.

Part of the intake side of the motor is shown in Fig. 14 from which it may be seen that the magneto rests upon a ledge cast integral with the upper part of the crankcase, and is held in position by means of a steel band and an easily removable connection. The coupling of the magneto in the new models is of the universal jaw-type as heretofore, but it is now encased in an aluminum covering which is packed with grease sufficient for a season's running. The leads to the sparkplugs are carried in the tube B and the method of attaching the intake manifold is also shown. The arm M3 leads to the rear pair of cylinders, and the lead M1 to the front pair. In order to equalize the flow the connecting arm of the manifold M2

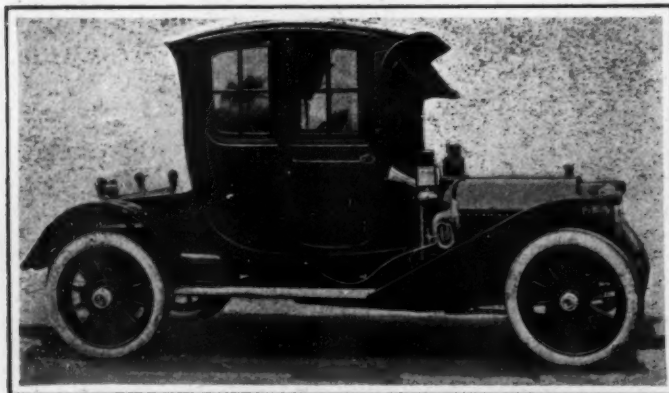


Fig. 9—Coupe body fitted to the Locomobile four

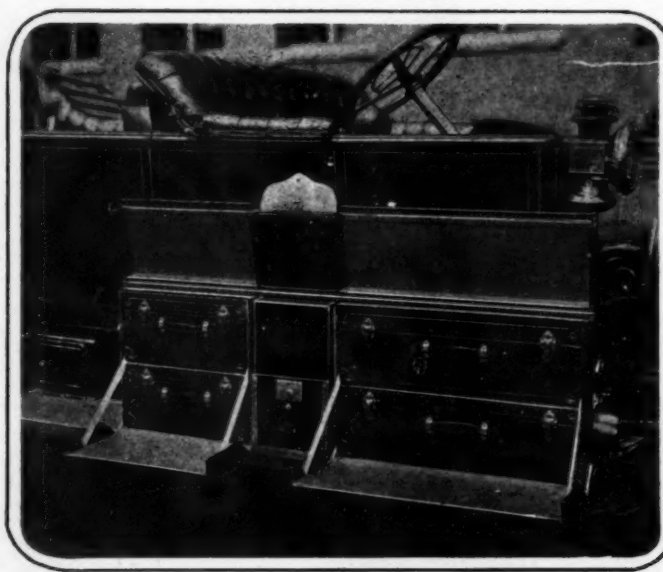


Fig. 10—Method of carrying baggage in waterproof-covered suit cases on the running boards

is attached midway in the forward and rearward arms and may be clearly seen in Fig. 2.

The carbureter, of the float-feed, constant-level type, employs a single tube through which passes the gasoline for all speeds of the motor; in other words, the functions of the needle valve and the auxiliary gasoline supply are performed by a single tube. In addition to the cone-shaped nozzle at the end, the pipe is perforated at the center of the strangling tube, and thus the supplementary openings for the low speeds are furnished.

The action of the auxiliary air valve V is simple and is controlled by a dashboard lever which serves as a convenient and efficient adjustment while the car is running. The action of the lever is to compress a second spring which opposes the action of the main spring so that the tension of the latter can be regulated to suit all conditions of weather. To assist the vaporization the mixing chamber is water-jacketed.

The gearset affording four ratios of gear is located amidships, and is of the selective type. Like the motor base the housing is of manganese bronze. The power of the motor is transmitted by means of a multiple-disc clutch, shown in Fig. 5, the flange F1 being attached to the mating boss on the flywheel. The pressure needed to keep the plates P1 and P2 to-

gether is furnished by the spring S, and the whole is enclosed by the cover C, the tension of the spring and the adjustment thereof being taken care of by the ring C2.

Two radius rods are attached at their rear ends by means of discs to the rear axle housing, forming covers for the brake drums, and at their forward extremities to the spring brackets. The torsion rod is of pressed steel mounted at the forward end in a vertical cylinder between two heavy springs. The combination of radius rods and torque member is intended to relieve the springs of pull and twist, permitting them to perform, unhindered, their work of supporting the weight of the car.

The suspension of the chassis is taken care of by semi-elliptic springs, at the front, 38 inches long and 2 inches wide, and at the rear by means of three-quarter elliptic springs 48 inches long and the same width as the front springs. When the car is loaded practically straight-line drive between the gearset and the differential obtains, as the propeller shaft revolves at an angle of about one degree with the crankshaft. Four universal joints are provided—two between the clutch and gearset and two between the gearset and live rear axle. The gasoline tank is situated below the driver's seat and has a capacity of 25 gallons. An auxiliary oil tank is placed alongside the gasoline tank and is provided with a shut-off cock.

The wheel base of the six is 135 inches, and the tires are 36

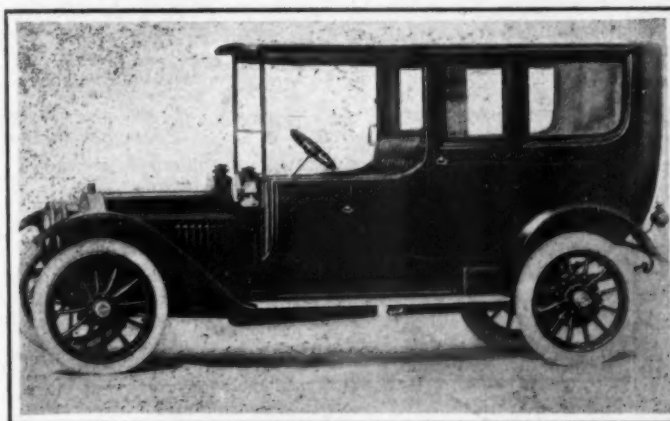


Fig. 12—View of the fore-door limousine fitted to a Locomobile six

x 41-2 for the front, and 37 x 5 inches for the rear wheels, fitted to demountable rims.

Figs. 3 and 6 show the upholstery of the limousine, which has been made very luxurious, particular care having been paid to the folding seats in order to make them as comfortable as possible. It is better to pay more attention to the upholstery of a car and fit ample cushions, thus relieving the passengers from road shocks, than to fit "soft" springs and thereby weaken this vital organ. The cushions of the rear seats are 10 inches deep and there are three rows of 8-inch springs in each of the three sections composing the back. The back of the rear seat is two inches higher than that of the one in front, and neither projects more than five inches above the sides and doors that form a continuous straight line from dash to rear of tonneau. The concealed hinges on which all doors are mounted serve to keep the exterior of the body free from any metal projections that would tend to destroy the color scheme or symmetry of the outline of the car. The lock on each door is operated only by means of a top lever, handles being thus eliminated from the outer surface of the body.

The running boards have been kept clear of all equipment or attachments. This has been brought about by carrying the two spare tires at the rear of the body, held in place by brackets against the back of the tonneau; by stowing the tools and battery under the floor boards at the back; and by placing the gasoline tank under the front seat. This arrangement not only adds greatly to the appearance of the car, but leaves the running boards, which are unusually long and commodious, free to carry such suit cases, trunks, or other baggage as may be required by the members of the touring party.

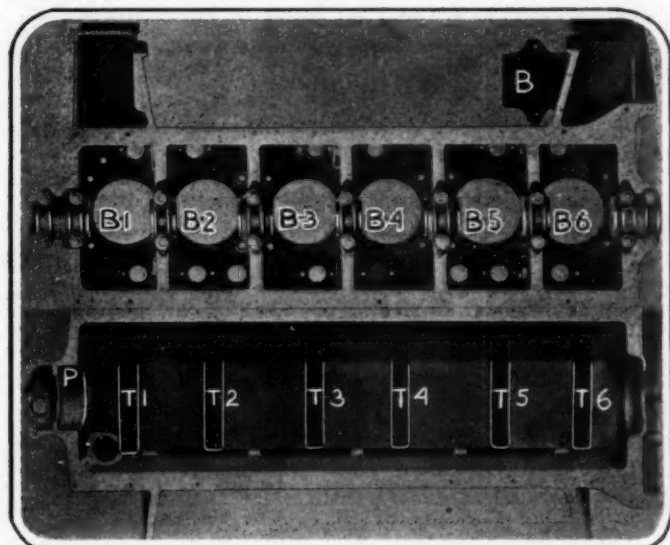


Fig. 11—Two views of the crankcase of the Locomobile six

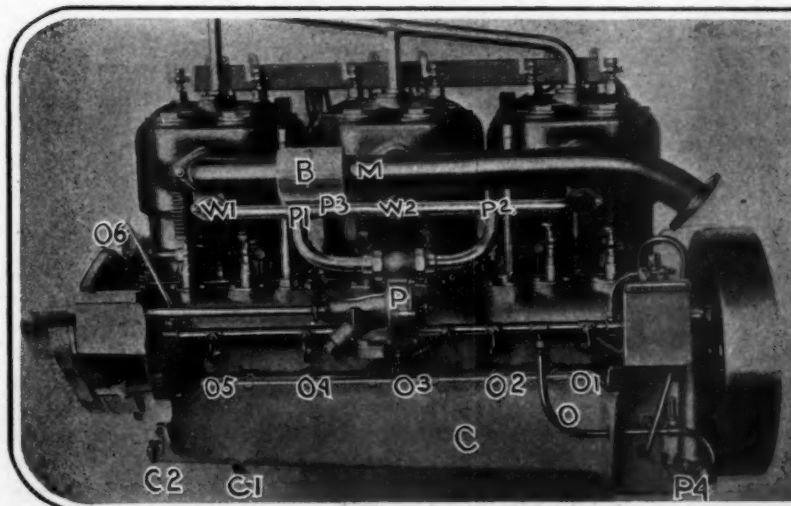


Fig. 13—View of the exhaust side of the Locomobile six motor

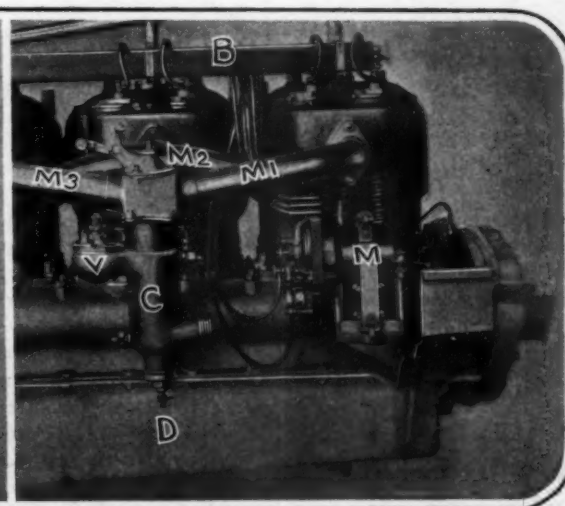


Fig. 14—Part of the intake side of the motor showing the magneto

Automobile Scores in British Strike

LONDON, Sept. 6—The past fortnight has witnessed England disturbed in every quarter by the labor struggle—the carefully planned strike of railroad and transport workers which was calculated to disorganize every trade and thereby to hasten along the granting of the men's full demands. Unfortunately for the strike-leaders, they had forgotten to take into account the development of the automobile, and hence, in great measure, came the failure of their schemes. Now that the trouble is all over, it is consoling to reflect on the benefits that have accrued, to the public, in that the railway monopoly has been proved to be unimportant, and to the automobile industry, in that the value of the commercial vehicle has been demonstrated in the most thorough manner conceivable. Already, the results are showing themselves in a steady rush of orders from transport companies and from traders of all classes for trucks, vans and haulage tractors.

Undoubtedly, the strikers scored well at first, for the shortness of the warning notice caught the motor vehicle owners unprepared and the gasoline supplies were at a low ebb. However, within a week the motor services were in full swing, and, by dint of careful management, the fuel was made to last. At the first signs of the outbreak, the available reserves were bought up by the omnibus and transport concerns, and the main sufferers were thus the pleasure car and small van owners. As much as \$2.50 per gallon was regularly charged for gasoline at certain places, instead of the usual 25 cents, and resort had frequently to be made to kerosene, naphtha, alcohol and other possible, though undesirable, fuels. Here is another lesson which has been learned; everyone is now storing gasoline reserve supplies, and in case of further labor troubles or a war outbreak, there will be sufficient motive fuel for six months running.

A week before the railway stoppage commenced, the London carters ceased work, and they expected to paralyze the trade of the metropolis by their action. They were making a big mistake, for, at all the markets, the lumbering two-horse wagons were at once replaced by swift-moving motorvans, private cars, motorcycles and trailers, and, in short, every conceivable type of power vehicle. The work was carried on without any delay. The speed limit was abolished by general consent and it was possible to average over twenty-five miles an hour right through London. Under ordinary conditions, with the obstruction of horse-drawn vehicles, the speed would be little better than half. London has had its first experience of purely mechanical traffic, and so universally satisfactory have been the results that serious proposals are afoot for the limitation of the use of horsed vans and wagons to the evening and night hours.

Still another use for the automobile was found in Liverpool, where riotous happenings were experienced. Both the police and the military were severely damaged by the missiles—bricks, bottles and occasional bars of iron—thrown by the hooligans from the shelter of houses on the line of march. Accordingly, half a dozen three-ton goods trucks were equipped with substantial sides and tops of wood barricading, the radiator and all vulnerable parts were cased in, and these armored wagons then patrolled the disaffected areas with armed men on board. Quite a useful purpose was served by these vehicles, which were able to convey the majesty of the law right through the mob to the center of all disturbances, and yet to protect the police from cowardly assaults from the housetops.

Few as were the special road services instituted during the strike, they all, without exception, proved their utility in a remarkable way, demonstrating to the general public that, in a

country like England, where 200 miles is almost the longest normal journey for goods traffic, the power wagon and the road train can compete openly with the railway service.

To transport food supplies and perishable goods from the bascs of supply to the distributing centers at a time of need would require at least ten or fifteen thousand motor vehicles. Such a number of trucks and lorries could not be mustered together and a proposal has therefore been brought forward, by Lord Montague, that *motorists should combine together in a big public service league, which would be so organized that when the time came, a sufficiency of cars and drivers would be available to meet any emergency.* The two British Clubs—the R. A. C. and the Automobile Union—have a membership of 50,000 between them, and there would probably be not much difficulty in enrolling the required number of patriotic car owners.

The strike has proved a godsend to the commercial motor vehicle industry, and all the well-known manufacturing firms are now booked right up for at least six months to come. Meanwhile, inquiries are pouring in and there is clearly enough available business to keep the whole of the trade well employed for a year or two to come.

As the existing firms are all fully occupied, the pleasure car manufacturers are hurriedly completing the plans which they have for several seasons been developing and the majority of the most important touring car firms will have their commercial vehicle section fully working by the Spring time. The one, three, and five-ton trucks are the popular fancies; the small pneumatic-tire van business is only attempted in a desultory sort of way—generally as a means of using up last year's pleasure car chassis. In this section, right away, there seems quite a good opening for the American manufacturer. Incidentally, it is interesting to note the comparative sales figures of commercial vehicle progress, obtained by one of the technical weeklies by confidential reports from the manufacturers. Taking the 1905 output as a basis with 100 as the figure, the 1907 figure is 201; by 1909 it slowly had increased to 315, while the estimated total for this present season is 620. Next year, according to the present outlook, should give a figure well over the 1,000 mark.

Alco Rests on Its Laurels

The following self-explanatory statement has been issued by the American Locomotive Company:

"The American Locomotive Company has decided to withdraw from racing. Our reason for this action is that racing takes more time and attention on the part of our organization than we feel justified in devoting to it.

"This decision will not apply to commercial vehicles if properly arranged contests for such are planned in the future.

"The six-cylinder stock car with which Mr. Grant won the last two Vanderbilt Cup races has been presented to him by the company as an expression of our appreciation of his services to us."

Wilby Reaches Chicago

CHICAGO, Sept. 11—Thomas W. Wilby, driving an Ohio car, who is on a 12,000-mile pathfinding tour in the interests of the Office of Public Roads of the Department of Agriculture at Washington and the Touring Club of America, reached Chicago Saturday, having come from New York. Reporting on the first leg of the journey, Mr. Wilby says: "As for the eastern sec-

tion of the transcontinental route, I found that New York State is macadamizing the whole of the Albany post road and the Mohawk Valley route. When completed they will make a fine system of highways. Ohio hasn't done much yet with its gravel highways, and we found very little macadam in Indiana, but the last-named State has some wonderfully straight, broad gravel roads, extending for miles across the level prairie-like country. They would make ideal highways at very little expense and trouble. Indiana certainly would confer a public boon upon motorists if it would put its road-making machines into operation. We were surprised to find what were little more than sandy trails near Michigan City on the way into Chicago."

Grand Rapids' Motor Fire Equipment

GRAND RAPIDS, MICH., Sept. 9.—Following its general policy of substituting motor-driven fire apparatus for the old style pulled by horses, the Board of Police and Fire Commissioners has awarded the contract for a new auto hosecart to the Seagrave Company, of Columbus, Ohio. The new machine is to cost \$3,950 and will be stationed at the new No. 12 engine house. The Michigan Hearse and Carriage Company of this city now is engaged in constructing the bodies for two chemical automobile machines to be installed at No. 1 and 3 engine houses. At No. 5 engine house there is a combination chemical hosecart and truck, Battalion Chief Walker has an official runabout and the board is figuring on letting a contract for a hook-and-ladder truck. It is the policy of the board to purchase the chassis from the automobile manufacturer and then have the body made in this city according to specifications made by the board. The police department at present has a motor-driven ambulance and patrol.

See Pickens' Hand at Kansas City

According to officials of the Contest Board of A. A. A., the race meeting hitherto sanctioned for Kansas City, September 16-17, was declared off for rather a different reason than the one

announced. It was said that the track was in impossible shape for racing and that the reason for withdrawing the sanction was founded in that fact. It is now stated with some show of authority that the redoubtable "Bill" Pickens was the actual promoter of the meeting, using the name and personality of some person who was not in the bad graces of the authorities. It is further stated that one or more of the racing cars owned or controlled by Pickens are being held on attachment in Kansas City because of certain preliminary obligations of a financial nature alleged to have been contracted by the promoter.

Pickens is quoted as saying that he had no intention of actually holding a race meeting, but merely wanted to show the public that he could get a sanction from A. A. A. The action of that body shows that "Bill" was wrong.

New Homes for Everitt and Oakland

Announcement has been made that the Shepherd Motor Car Company which has handled the Oakland line in New York for several years, has taken on the Everitt. The full line of the Metzger company's production will be handled in the way of passenger vehicles and the new six-cylinder creation of the company will be on hand within two weeks.

The Oakland cars will be sold in New York by a factory branch which will be installed about October 1. The branch will be located on Broadway near the salesrooms of the Shepherd company.

Riess Company to Move North on Row

C. E. Riess & Co., handling the Marion and American lines, will remove to the quarters formerly occupied by the New York branch of the Thomas at Sixty-third and Broadway. The change will be accomplished about October 1. Business has been extraordinarily good for the type of cars represented by the Marion during the past season, and the 1911 allotment has been oversold. Mr. Riess personally is at the factory trying to secure another shipment of cars.

Calendar of Coming Events

Shows, Meetings, Etc.

- Sept. 25-30.....Atlantic City, N. J., Convention and Exhibition of the Carriage Builders' National Association.
Jan. 1-5, 1912.....New York City, Grand Central Palace, Annual Show, Automobile Manufacturers' Association of America.
Jan. 6-13.....New York City, Madison Square Garden, Twelfth Annual Show, Pleasure Car Division, Automobile Board of Trade.
Jan. 10-17.....New York City, Madison Square Garden, Annual Show, Motor and Accessories Manufacturers.
Jan. 10-17.....New York City, Grand Central Palace, Twelfth Annual Show, National Association of Automobile Manufacturers.
Jan. 15-20.....New York City, Madison Square Garden, Twelfth Annual Show, Commercial Division, Automobile Board of Trade.
Jan. 18-20.....New York City, Annual Meeting of the Society of Automobile Engineers.
Jan. 27-Feb. 10....Chicago Coliseum, Eleventh Annual Automobile Show under the auspices of the National Association of Automobile Manufacturers. Pleasure cars, first week. Commercial vehicles, second week. Accessories, both weeks.
March 2-9.....Boston, Mass., Tenth Annual Show, Boston Automobile Dealers' Association, Inc.

Race Meets, Runs, Hill-Climbs, Etc.

- Sept. 12-15.....Omaha, Neb., Third Annual Endurance Run, Omaha Motor Club.
Sept. 15.....Knoxville, Tenn., Track Races, Appalachian Exposition.
Sept. 16.....Syracuse, N. Y., Track Races, Automobile Club and Dealers.
Sept. 18-20.....Chicago, Ill., Commercial Reliability Run, Chicago Motor Club.
Sept. 19.....Burlington, Vt., Reliability Run, Merchants' Protective Association.
Sept. 23.....Philadelphia (Point Breeze), Track Races, Philadelphia Automobile Trade Association.
Sept. 23-25.....Detroit, Mich., Track Races, Michigan State Agricultural Society.

- Sept. 30.....Guttenburg, N. J., Track Races.
Sept.Steubenville, O., Hill Climb, Automobile Club of Jefferson County.
Sept.Denver, Col., Track Races, Denver Motor Club.
Oct. 6-13.....Chicago, Ill., Thousand-Mile Reliability Run, Chicago Motor Club.
Oct. 7.....Danbury, Conn., Track Races, Danbury Agricultural Society.
Oct. 7.....Philadelphia, Fairmount Park Road Races, Quaker City Motor Club.
Oct. 7.....Springfield, Ill., Track Races, Springfield Automobile Club.
Oct. 13-14.....Atlanta, Ga., Track Races.
Oct. 14.....Santa Monica, Cal., Road Races.
Oct. 14 (to 25)....New York City, Start of the Annual Glidden Tour, en route for Jacksonville, Fla.
Oct. 16-18.....Harrisburg, Pa., Reliability Run, Motor Club of Harrisburg.
Nov. 1.....Waco, Tex., Track Races, Waco Auto Club.
Nov. 2-4.....Philadelphia, Reliability Run, Quaker City Motor Club.
Nov. 4-6.....Los Angeles, Phoenix Road Race, Maricopa Auto Club.
Nov. 9.....Phoenix, Ariz., Track Races, Maricopa Automobile Club.
Nov. 9, 10, 12....San Antonio, Tex., Track Races, San Antonio Auto Club.
Nov. 27.....Savannah, Ga., Vanderbilt Cup Race, Savannah Automobile Club.
Nov. 30.....Los Angeles, Cal., Track Races, Motordrome.
Nov. 30.....Savannah, Ga., Grand Prize Race, Savannah Automobile Club.
Nov.Columbia, S. C., Track Races, Automobile Club of Columbia.
Dec. 25-26.....Los Angeles, Cal., Track Races, Motordrome.

Foreign Fixtures

- Sept. 10-20.....Hungarian Small-Car Trials.
Sept. 16.....Russian Touring Car Competition, St. Petersburg to Sebastopol.
Sept. 17.....Semmering, Austria, Hill Climb.
Sept. 17.....Start of the Annual Trials Under Auspices of l'Auto, France.
Nov. 3.....London, Eng., Olympia Show.

THE AUTOMOBILE

Vol. XXV

Thursday, September 14, 1911

No. 11

THE CLASS JOURNAL COMPANY

H. M. SWETLAND, President

CONDE NAST, Vice-President and General Manager

E. M. COREY, Secretary and Treasurer

231-241 West 39th Street, New York City

Cable Address - - - - - Autoland, New York
Long Distance Telephone - - - - - 2046 Bryant, New York

SUBSCRIPTION RATES

United States and Mexico - - - - - One Year, \$3.00
Other Countries in Postal Union, including Canada - - - - - One Year, 5.00
To Subscribers—Do not send money by ordinary mail. Remit by Draft,
Post-Office or Express Money Order, or Register your letter.

Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly), May, 1902, Dealer and Repairman (monthly), October, 1903, and the Automobile Magazine (monthly), July, 1907.

The Winter Automobile

MORE attention is being paid among automobile makers this fall to the winter body than ever before. Some years ago many automobile makers built nothing but open touring or runabout bodies. Then a demand grew for an enclosed type, and the limousine came into being. This was soon followed by the landaulet, which came as a combination open-closed type. Following this came the coupé. At present much attention is being bestowed on a special type of enclosed car for the owner-driver who wants to sit at the steering wheel himself for his winter trips, but who does not want to be separated from his family by a plate glass partition. The demand for this style of car will be a most appetizing one in a year or so. Such a car type is the limousine for the middleman, the owner who does not want a chauffeur, but who wants to take his family to the theatre, to church or for an outing. The body is a one-compartment type, with room between the two front seats for a passage to said seats.

The chief objection in the past to this type of body has been the entrance to the front seats. It has demanded a double set of doors—one for the front seats, the other for the back seat. This has been expensive, too expensive to be exploited in the medium-price field. The solution has been in the wider body for the front seats. Some builders are making the body at this point as wide as the tonneau at the rear. This has been made possible by adding body plates which project out from the frame members at each side and on which the body rests. This extra width allows of two wide front seats with a good passage between them. With this design but two doors are customary, but one only is actually essential; it should be on the right side, as in all the larger cities the traffic ordinances require a vehicle to stop with the right side to the curb.

With modern body constructions every possibility in the way of individuality of seating is obtainable in a one-compartment winter body. The interior arrangements depend entirely on the owner's requirements. Small supplementary seats for children can be located in

almost any part of the compartment. A common practice is to arrange one folding seat at the left end of the dash, where ordinarily there is plenty of room for it.

One detail overlooked in many winter cars is the heating arrangements. No provision is made for heat in the majority of the types, and in cold weather it is necessary to use heaters which are placed on the floor. These are good; but, in addition to them, there is no reason why a part of the exhaust cannot be utilized for this work. The automobile is a heat machine; the engine must keep very warm to work well. At present much of this heat goes off through the muffler, and a portion could be used to keep the compartment at any desired temperature. Some makers have put small exhaust radiators in the car floor; others have hot-air-jacketed a part of the muffler and led the air through this jacket before getting it into the compartment. All are good, yet it seems that the good work has not been carried far enough. The man buying an enclosed winter car for \$2,000 or less wants a little heat as well as the owner in his \$4,500 limousine. The extra cost has not been the prohibition; rather it has been the fact that the maker has not done it. He has reasoned that it has not been demanded, and then why should he install it? This is short-sighted logic; it is the same logic that some makers used in conjunction with the fore-door body; they did not install it until demanded and then found out that they were six months behind the times. In heating winter bodies, the car maker should keep up with the times, and if he errs let him err in being ahead of the times rather than in being in the rear.

It is not entirely with enclosed cars that the critic sees the comforts of the car owner being looked after more than ever in the 1912 cars. Many makers have taken up the matter in open touring cars and runabouts. Not a few factories have enhanced the luxuriousness of the upholstery almost 100 per cent. for the coming season. This administers directly to the comfort of the owner and his family. The upholstery has been inadequate on many cars; it has sufficed at the start, but soon became hard.

There is yet much room for improvement in the comfort-administering details of the car body. Who has not ridden in the rear seat of a seven-passenger car and had his legs cramped in order to get his feet on the inside or on the outside of the supports for the extra seats? It frequently happens that if the passenger sits at the right end of the rear seat he has to constantly cramp his feet to the inside of the auxiliary seat rest, whether the seat is folded away at the side of the tonneau or in use. If the designer of the seat would take a 100-mile ride some day in such a car he would immediately get back to the factory to design a rational extra tonneau seat. In other cases the extra seat is so close to the rear seat that the rear-seat passengers have not room enough and their shins are constantly rubbing against the back line of the extra seat. This is equally bad and it is astonishing that body designers will allow such body jobs to be sold to the public. It is almost a certainty that the designer has never taken a long trip in such a seat. It may be argued that such seats are not intended for long trips, but any man with experience in long-distance touring will agree that it is more comfortable to ride all day in a comfortable extra tonneau seat than it is in the tonneau seat itself.

Gossip of the Coming Shows

A LLOTMENTS of space at all the shows sanctioned by the Motor and Accessory Manufacturers will be made October 7 when that organization assembles in New York. The M. & A. M. has sanctioned the Garden Show of the A. B. of T.; the Palace Show of the N. A. A. M.; Boston pleasure and commercial shows and the Chicago National Show.

The organization now has 222 members and has on file about a score of applications for membership. It is expected that practically 150 of these concerns will have space at the New York shows and about the same number at Chicago. The Boston shows always have a large number of locally made accessories that are not shown elsewhere, but the indications are that there will not be more than 150 M. & A. M. concerns there.

Drastic action against independent manufacturers who have exhibited at unsanctioned shows in the past has not been contemplated and in fact the independents will have a chance to exhibit their wares at the big shows.

The basement of the Garden will be used largely by exhibitors who are not members of the M. & A. M. and there will also be some space in the galleries for such concerns. There is no reason why those who have exhibited at unsanctioned shows may not take advantage of the open-door attitude that exists among the authorities.

While the drawings for space have been made as far as the A. B. of T. show are concerned, there are so many alterations to be made in the interior arrangement of the Garden that there may be a number of changes in spaces. This matter is now in

the hands of the architects and the final arrangement may not be absolutely fixed for several weeks.

The drawing for space for the Palace Show will take place October 4. It is predicted that this affair will prove the largest and most complete automobile exhibition ever held under the designation "Palace Show."

The independents who exhibited at the unsanctioned show last year are eligible for reinstatement or have been reinstated and several of the more prominent companies that took part have applied for space. The rule of the N. A. A. M. was that suspension for 18 months must follow violation of the rule against participation in unsanctioned events, but this rule has been so modified that nobody shall be barred.

The show contemplated by the Automobile Manufacturers' Association of America, and which was tentatively scheduled for the Palace, is shrouded in some uncertainty. Secretary Longendyke and the association have offices at Forty-fourth street and Fifth avenue, but on Tuesday noon, when a representative of THE AUTOMOBILE called there, the door was locked and the elevator starter imparted the information that Mr. Longendyke was out of town.

Nothing definite has been announced recently about the show and it is pretty widely rumored that the original date for holding it has been postponed. In the absence of Mr. Longendyke this could not be confirmed.

It is freely predicted that the show season of 1912 will be larger and better than any of its predecessors.

New N.A.A.M. Members

AT its recent meeting the N. A. A. M. elected the following to membership:

J. I. Hanley, representing American Motors Company, Indianapolis, Ind.

G. A. Matthews, representing Jackson Auto Company, Jackson, Mich.

C. H. Walters, representing DeTamble Motors Company, Anderson, Ind.

F. H. Dodge, representing Ohio Electric Car Company, Toledo, Ohio.

A. B. C. Hardy, representing Marquette Motor Company, Saginaw, Mich.

George E. Daniels, representing Oakland Motor Car Company, Pontiac, Mich.

T. A. Campbell, representing Imperial Auto Company, Jackson, Mich.

T. F. Hart, representing Inter-State Automobile Company, Muncie, Ind.

Charles D. Hastings, representing Hupp Motor Car Company, Detroit.

D. A. Shaw, representing Simplex Motor Car Company, Mishawaka, Ind.

W. J. Groves, representing Mack Bros., Motor Car Company, Allentown, Pa.

Fred W. Haines, Regal Motor Car Company, Detroit, Mich.

R. C. Hupp, representing Hupp Corporation, Detroit, Mich.

Rauch & Lang Carriage Company, Cleveland, Ohio.

Thomas Henderson, vice-president of the Winton Motor Carriage Company has resigned as a member of the Executive Committee of the N. A. A. M. Charles W. Churchill was elected in place of Mr. Henderson. Suitable resolutions of regret were ordered engrossed and spread upon the minutes of the organization and Mr. Henderson was unanimously chosen to be an honorary member of the committee.

To Test License Right

REGARDING the basic principles involved in licensing of automobiles, the N. A. A. M. has issued the following official statement with regard to its intentions to have the legal status established:

"It was decided that what has been known as the New Jersey Test case shall be carried to the Supreme Court of the United States. This is a case instituted five years ago, designed to show that no State or any other power may constitutionally demand that an automobilist take out a license. The case was started in the lower courts and has progressed step by step, the decision in each case being adverse. This was expected, and indeed hoped for, so that the question might, in due course, reach the highest court."

M. C. A. Defines Grade 4 Contests

When the Active Rules Committee of the M. C. A. met last week it was decided to amend the contest rules so that the Glidden Tour this fall could be entered with other than registered stock models. At the Detroit meeting of the M. C. A. a resolution was recommended to widen the field for Grade 4 contests by making registration unnecessary in that grade on and after January 1, 1912. The recent action of the Rules Committee merely advances the date of the rule's operation.

Winter Show for Worcester

WORCESTER, MASS., Sept. 11—Owing to the success of the Licensed Dealers' show, recently held in this city, arrangements are being made to hold a larger and more complete exhibition in the Worcester Auditorium during the coming Winter. A feature of the recent show, which was held under tents at the New England fair, was the exhibit of commercial vehicles, given in a specially constructed tent.



NEWS OF THE WEEK CONDENSED

Start of the Flanders 20 Glidden Pathfinder from New York City en route for Jacksonville, Fla.

NEW YORK—The practicability of inter-city trucking service was demonstrated recently by the run which a brand new Commer truck made from Brooklyn to Philadelphia. The fully loaded Commer left Brooklyn at midnight, September 6, and arrived at its destination at 9 in the morning, two stops being made on the way. The average running time was 14 miles per hour.

MILWAUKEE, WIS.—A. McNeil, 161 Michigan street, has been appointed distributor of the Liberty Brush.

SHEBOYGAN, WIS.—The Erie Garage Company has been appointed district agent for the Hupp-Yeats electric line.

GRAND RAPIDS, MICH.—The name of the Buick Sales Company has been changed to the Grand Rapids Auto Company.

PORTLAND, ORE.—E. W. Vogler, president of the Northwest Auto Company, Portland, has added another agency to his long list. His latest acquisition is the Stearns.

SPOKANE, WASH.—Vance Wolverton, C. E. Lane and J. A. Munson are associated in the Spokane Everitt Motor Company, the latest invader of Spokane's auto row.

SACRAMENTO, CAL.—The city of Sacramento, Cal., has purchased two motor cars for use in its fire department service. This makes five purchased by that city in the last four years.

SPOKANE, WASH.—Harry Olive, formerly connected with Norman Church, the Southern California Stoddard-Dayton distributor, will hereafter handle the Overland cars in Spokane, Wash.

SYRACUSE, N. Y.—J. A. Seitz, head of the Abbott-Detroit agency in Syracuse, is having a large new building put up, corner Jefferson and Warren streets. He will move into this about December 1.

SAN FRANCISCO, CAL.—The U. S. Tire Company has opened temporary quarters at 414 Van Ness avenue, San Francisco. A new building is being erected for this company at 636-646 Van Ness avenue.

BOSTON, MASS.—Stanley G. Martin is now in charge of the Decatur truck branch in Boston, and he has had the business moved to the new maintenance department the company has opened in Cambridge.

BOSTON, MASS.—Arthur G. Johnson, formerly with D. P. Nichols & Co. when it handled the Frayer Miller trucks, is now sales manager of the Eastern Motor Truck Company, distributors for the Kelly truck.

MILWAUKEE, WIS.—An ordinance has been passed by the Common Council of this city forbidding the practice of cutting out the muffler in the city limits. The penalty for violation is a fine of \$25.

MILWAUKEE, WIS.—The Franklin Auto & Supply Company, 321-323 Fourth street, agent for the Franklin and Regal, has been appointed State agent for the Curtis, Farman and Bleriot type of aeroplanes.

BOSTON, MASS.—The Hollander Automobile Company has opened salesrooms at 169 Huntington avenue, where it is handling the Metz car, made in Waltham. The local agency has the New England field for this make.

COLUMBUS, OHIO—J. B. Hoover, who has been operating a stamping works and machine shop at 619-621 North High street, has taken the Central Ohio agency for the Nyburg automobiles, manufactured in Anderson, Ind.

LOS ANGELES, CAL.—John W. Swan, who for the past three years has been connected with the Leon Shettler Company, of Los Angeles, has taken the position of sales manager for the Reo Pacific Company in San Francisco.

YORK, PA.—W. Archie Miller, West Market street, has opened an automobile garage and repair shop in the brick building at 308 West Mason avenue. Mr. Miller was formerly employed by the Snyder Auto Company, this city.

DELAWARE, OHIO—D. F. Boston, of Bowling Green, Ohio, has opened a vulcanizing plant in the Pickering block. Boston had been conducting a similar business in Bowling Green, but sold out to open the shop in Delaware.

GRAND RAPIDS, MICH.—A new fireproof garage has just been completed at 249 Lake avenue for Ed. Mosher. The basement is fully equipped for repair work, while the first and second stories will be used almost exclusively for storage.

COLUMBUS, OHIO—The Main estate has begun the construction of a large garage in the rear of the Neil House, Columbus, Ohio, which will be leased to an operating company to be announced later. The garage will be 63 x 96 feet.

COLUMBUS, OHIO—H. R. Leach & Co., located in the Exchange Building on Taylor avenue, have taken the Central Ohio agency for the Lambert friction transmission trucks, manufactured by the Buckeye Manufacturing Company, of Anderson, Ind.

SAN FRANCISCO, CAL.—Two more new cars are to be represented in San Francisco. The Pathfinder and Parry are the new entries in the California field. They will be handled in San Francisco by the Motor Car Manufacturers' Sales Agency.

TOLEDO, OHIO.—H. P. Robinson, of Toledo, has been placed in charge of the general agency of the Packard Motor Truck Company, with headquarters at Milwaukee, Wis. He was formerly connected with the New Era Paint & Varnish Company, of Toledo.

YORK, PA.—Bids for the manufacture of the State automobile license tags will be opened on September 19 by the State Highway Commissioner. Close to 42,000 tags have been issued this year and it is estimated that fully 50,000 will be required for next year.

BRISTOL, CONN.—The New Departure Manufacturing Company is sending out to all those who desire data sheets regarding ball bearings. The sheets also include stress tables and diagrams and are of such size that they can be inserted in the S. A. E. handbook.

COLUMBUS, OHIO—A contract has been made with the Ford Automobile Company to rent five of its runabouts to mail collectors of Columbus, Ohio, for the purpose of collecting mails. The cars will be placed in service as soon as they can be properly equipped and manned.

MILWAUKEE, WIS.—The Stegeman Motor Car Company has appointed the Schreiber Motor Car Company, 180 Fifth street, as Western distributor and local representative. The company builds a line of trucks from one to six tons capacity, with a guarantee of 25 per cent. overload.

FOSTORIA, OHIO.—Henry J. Adams and four other members of his family, including two children of two and four years of age, encircled Lake Michigan in a Reo, 1911 car. Their trip of 1,700 miles has just been completed and the whole party of five greatly enjoyed the unique experience.

TOLEDO, OHIO—The McLeary Engineering Company, of Toledo, has closed a deal which gives it the exclusive selling rights in Toledo territory on the Mais motor vehicle. X. D. Johnson, formerly with the Croxton-Keeton Company, will have charge of the automobile department of the company.

PHILADELPHIA, PA.—A. M. Pearson, of this city, will soon assume the management of the St. Louis Franklin branch. Mr. Pearson originally handled the truck business of the Packard Motor Car Company, of this city, and was later manager of the truck department of the White Company in Boston.

GRAND RAPIDS, MICH.—Since Messrs. Stratton & White have decided to handle the Hudson as well as the White cars, they have changed the name of the concern from the White Motor Company to the Stratton & White Auto Company. The entire floor space will be devoted to the storage of cars.

INDIANAPOLIS, IND.—A. E. Creeger, of Cleveland, Ohio, has been installed as manager of the new factory sales branch of the White Automobile Company. The Archey-Atkins Company, of Indianapolis, has been appointed agent for the Hudson "33," succeeding the agency held by the Indiana Automobile Company, which has taken on the Reo.

COLUMBUS, OHIO—Harry Joseph, who formerly operated a livery stable at the corner of Champion avenue and Oak street, has reconstructed the building into a modern garage. The second floor will be used for the storage of cars, while the garage proper and repair department will be on the first floor. The main entrance to the building is on Champion avenue.

INDIANAPOLIS, IND.—Stockholders of the Mais Motor Truck Company held their annual election of directors a few days ago, the following new directors being selected: Dr. Albert E. Sterne, John T. Sauter, A. W. Markham, C. L. Chandler, W. H. Roberts and Albert Mais. H. W. Moore, formerly cashier of the Capital National Bank, has been appointed assistant treasurer of the Mais Company.

MILWAUKEE, WIS.—The Rambler garage at 455-457-459 Broadway, Milwaukee, Wis., will cease to be a public garage as soon as Alfred Reeke, sales manager of the Milwaukee branch of the Thomas B. Jeffery Company, is able to make the arrangement. The policy of the Kenosha Company is to make all of its branches Rambler service stations exclusively, with no side lines.

SAN FRANCISCO, CAL.—A three-ton Kissel truck was used recently to transport grapes from Globe, Cal., to this city. The distance is 315 miles and the run was made in 31 hours. Fears were entertained that the 7,240 pounds of grapes could not be transported in the motor truck without bruising them, but they arrived in perfect condition, although the roads encountered were very rough and difficult.

Automobile Incorporations

AUTOMOBILES AND PARTS

BAY CITY, MICH.—National Motor Truck Co.; capital, \$300,000; to manufacture and sell freight automobiles.

BIRMINGHAM, ALA.—Birmingham Automobile Company; capital, \$10,000; to make motor vehicles. Incorporators: John B. Ransom, Geo. Bennie, B. J. Banks, Jr.

CANTON, OHIO—Wise-Green Motor Car Co.; capital, \$25,000; to make automobiles. Incorporator: K. P. Wise.

CLEVELAND, OHIO—Yale Cycle and Supply Co.; capital, \$10,000; to manufacture, sell and repair motor vehicles and accessories. Incorporators: C. H. Ferguson, Laura A. Ferguson, Edward E. Tompkins, H. S. Jackson, H. E. Tiggle.

LETOIT, MICH.—Morton Motor Car Company; capital increased from \$5,000 to \$10,000.

DONALDSONVILLE, LA.—Donaldsonville Auto Company, Ltd.; capital, \$10,000; to make and deal in automobiles. Incorporators: K. A. Aucoin, Dr. S. Moore, Dr. V. Painchaud.

JOLIET, ILL.—Joliet Auto Truck Co.; capital, \$10,000; to manufacture and deal in automobiles and accessories. Incorporators: Phil F. Carroll, Milo M. Case, Wilbur O. Dayton.

PIQUA, OHIO—Piqua Motor Co.; capital, \$50,000; to manufacture automobiles. Incorporators: L. H. Wessel and others.

AUTOMOBILE GARAGES, ACCESSORIES, ETC.

ANDERSON, IND.—J. H. Cloud Top Company; to manufacture parts; capital, \$10,000. Incorporators: J. H. Cloud, W. A. Hester, P. B. O'Neil.

BUFFALO, N. Y.—Eureka Seat Company; capital, \$10,000; to manufacture automobile parts and seats. Incorporators: Joseph H. Morgan, Maurice J. Cogan, Norbert C. Kropp.

BOSTON, MASS.—Richmond Garage & Motor Company; capital, \$15,000; to conduct a general garage business. Incorporators: Henry L. Richmond, Benj. V. Stevenson, Geo. W. Boland.

CLEVELAND, OHIO—Jepson Brothers Company; capital, \$5,000; to deal in automobiles and motorcycles. Incorporators: James E. Sayne, Peter G. Jepson, Anna D. Jepson, Richard J. Jepson, Minnie A. Jepson.

ELKHART, IND.—Brown Sales Co.; to deal in accessories; capital, \$5,000. Incorporators: Walter Brown, Beryl Brown, E. A. Skinner.

INDIANAPOLIS, IND.—Auto Lighting & Electric Company; capital, \$3,000; to make vehicle lights. Incorporators: G. S. Monfort, C. R. Brown, F. C. Parker.

JERSEY CITY, N. J.—Mechanical Rubber Tire Company; capital, \$100,000; to manufacture tires and other rubber goods. Incorporators: Wm. T. Wheeler, Frank B. Crawford, Frederic Carter.

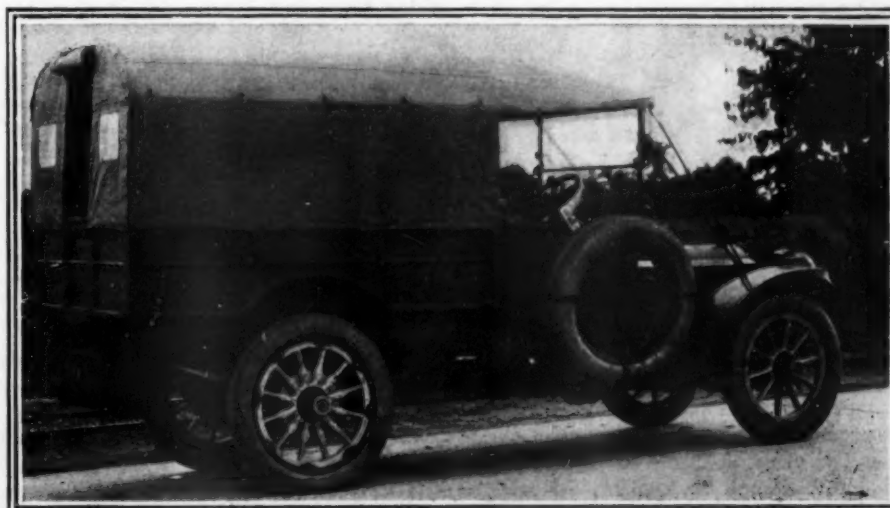
KANSAS CITY, MO.—Lawrence Automobile Brake Company; capital, \$2,000. Incorporators: R. E. Bolen, Virgil Lantz, W. O. Sonum.

MONTPELIER, IND.—Automobile & Supply Company; capital, \$5,000; to deal in automobiles and supplies. Incorporators: E. E. Helm, J. F. Ireland, L. Ireland.

PHILADELPHIA, PA.—Detroit Electric Car Company, of Philadelphia; capital, \$25,000; to buy and sell electric vehicles. Incorporators: A. M. Garrison, T. Morgan Russell, Amos S. Flowers.

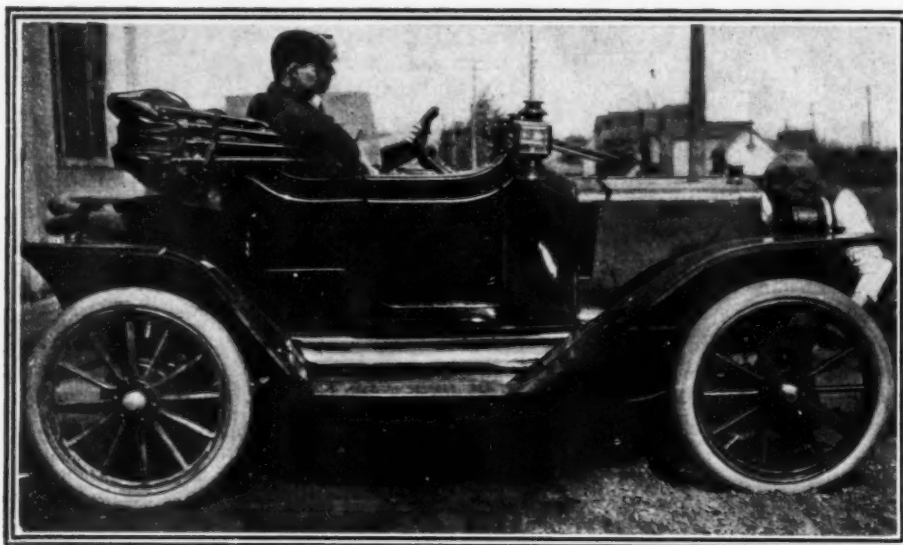
SPRINGFIELD, ILL.—Packard Motor Car Co.; capital, \$50,000; to manufacture and sell automobiles. Incorporators: Leslie L. Ayer, William Fogel, William L. Barnum, Jr.

UTICA, N. Y.—Utica Auto Supply Company; to manufacture and deal in auto supplies; capital, \$10,000. Incorporators: Howell D. Crim, Chas. S. Burrows, Oscar J. Brown.



The Packard special camping motor truck

OF INTEREST *to the* INDUSTRY



New R. C. H. car starting on long demonstration

DETROIT, MICH.—The R. C. H. runabout, a new creation of the Hupp Corporation, has started on its initial trip over the roads of Michigan. In the first three days the car covered 598 miles without developing any defects, making the run from Detroit to Grand Rapids, a distance of 162 miles, against the hilly and sandy roads between these points in good shape.

CHICOPEE FALLS, MASS.—O. C. Curtis, formerly of the Franklin Motor Car Co., will represent the Stevens-Duryea Co. in the South.

PORTLAND, ORE.—The Braly-DuBois Co., dealers in Franklin cars, will move to Nineteenth street, north of Washington street, on Sept. 15.

NEW YORK.—A new entry to the auto supply field, under the name of A. J. Picard & Co., will be located at 1720 Broadway after Sept. 22, 1911.

WASHINGTON, D. C.—W. C. Vliet, formerly assistant sales manager of the Buick Motor Co., has been appointed manager of the local branch of the E. M. F. Co.

AMESBURY, MASS.—The Graves & Congdon Co., manufacturers of the patent luxury automobile folding seat, have been reorganized under the name of the Hodge & Graves Co.

PORTLAND, ORE.—F. T. Bolton, formerly superintendent of the repair department of the Portland Automobile Company, has been promoted to the position of manager, taking the place of Ross B. Cooper, resigned. Mr. Bolton has been in the employ of the Winton Company for a number of years.

CHICAGO, ILL.—The Colby Motor Co. has opened a branch at 2009 Fullerton avenue. It will be under the management of W. H. Ogren, formerly of the Logan Auto Garage Co.

PONTIAC, MICH.—The estimated output of the Oakland Motor Car Co. will be between 5,000 and 6,000 of the 1912 model. No shutdowns or layoffs are expected during the ensuing year.

BRISTOL, CONN.—Samuel B. Dusenberre, formerly with U. S. Motors Co., is now Western sales manager for the New Departure Manufacturing Co., makers of ball bearings. He will be located in the Ford Bldg.

ADRIAN, MICH.—Leslie B. Sanders, until recently sales manager of District B, United States Motor Co., has accepted a position in the same capacity for the Lion Motor Co. and has just entered upon his duties.

DETROIT, MICH.—P. W. Hood, formerly Western representative of the American Distributing Co., will shortly take up his duties as a sales representative of the Timken concerns. He will probably operate in Chicago territory.

DETROIT, MICH.—A camping car of the prairie schooner type has been built by the Packard Motor Co., for the use of Henry B. Joy, the president of the concern. The car has been designed and built to suit sportsmen who wish to make an extended hunting trip in deserted country and to remain independent of hotels. There is plenty of room for provisions and dogs, besides the regular camping equipment. The body is mounted on a standard Packard 30 chassis.

SYRACUSE, N. Y.—L. A. McKay, Western sales manager for the Franklin Automobile Co., is on a business trip through Wisconsin, Minnesota, North Dakota, Montana, Idaho, Utah, Wyoming, Colorado, Nebraska, Alberta and Manitoba.

ST. LOUIS, MO.—A. M. Pearson, of Philadelphia, has been appointed manager of the St. Louis branch of the Franklin Automobile Co. Previous to his appointment with the Franklin company he had charge of the truck department of the White Company in Boston and the Packard in Philadelphia.

CHICAGO, ILL.—Lafayette Markle, formerly in charge of the Buick interests here, has been appointed general branch manager and supervisor of the E. M. F. Co.'s agencies throughout the United States. He will make his headquarters in Detroit. H. S. Johnston and C. B. Weaver, also of the Buick Co., will travel for the E. M. F. Co.

DE KALB, ILL.—Clinton F. Cook, formerly associated with C. B. Broughton in the general garage business, has purchased the interests of C. B. Broughton and will continue the business under the name of the West End Garage. C. B. Broughton will maintain a show and salesroom in the garage and will handle Buick cars in the greater part of De Kalb County.

DETROIT, MICH.—A branch of the Sheldon Axle Co. has been opened at 1215 Woodward avenue, the Sheldon company having felt a necessity of a branch in this city to take care of the rapidly increasing commercial vehicle business. C. H. Gleason, David Landau, consulting spring engineer, and W. M. Hogle, formerly with the Alden-Sampson Co., will handle the business.

SYRACUSE, N. Y.—The factory force of the H. H. Franklin Manufacturing Co. is being increased as rapidly as skilled mechanics can be obtained, so that during the coming month an increase of several hundred men will be made. The object is to prepare for an increased commercial and taxicab output. A two-ton truck will be added to the line when the essential details in construction have been decided.

CHICAGO, ILL.—The business of the Chicago Motor Car Co., Packard agents, has been taken over by the newly organized Packard Motor Car Co. of Chicago. It is located at Twenty-fourth and Michigan avenues, with H. M. Allison, former secretary of the Chicago Motor Co., in charge. The reorganization was made necessary by the accidental death of William L. De La Fontaine, vice-president of the Chicago Motor Car Co.

CONTROL MECHANISM.—A speed-change lever construction.

2. This patent (Fig. 1) relates to the combination of a shaft which may be turned or made to reciprocate by means of a lever, on the outside of which is provided a brake lever having a sleeve oscillating on the shaft mentioned to operate the brake mechanism. The sleeve which surrounds the shaft is provided with an actuating arm and extends beyond the last-mentioned lever. A guide for the levers is adapted to fulcrum the control lever in reciprocating the shaft, and another guide to confine it to any one of several paths of movement in turning the shaft, allowing the lever to oscillate in reciprocating the shaft.

No. 1,002,188—to Horace T. Thomas, assignor to Reo Motor Car Co., Lansing, Mich. Granted August 29, 1911; filed November 8, 1909.

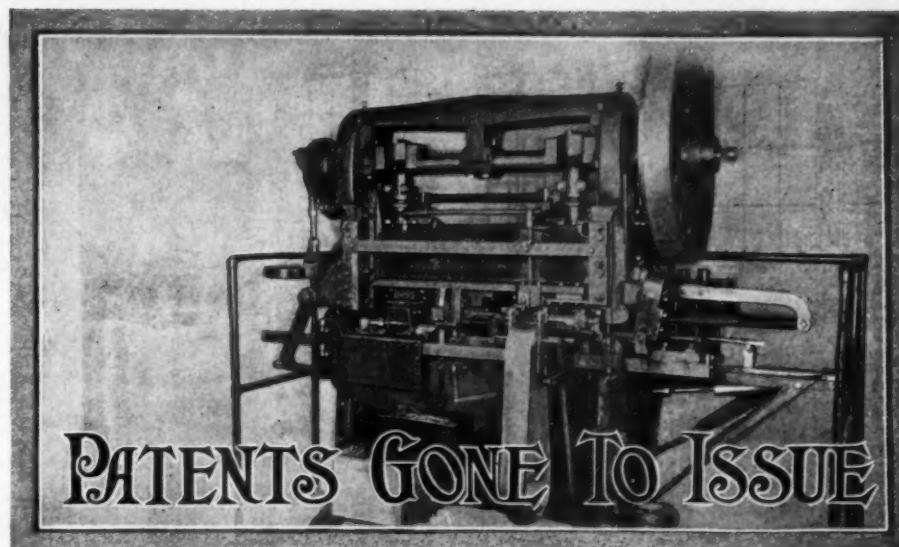
RESILIENT WHEEL.—A mechanical wheel in which elasticity is insured by the use of tubular springs.

1. The wheel (Fig. 2) comprises a hub and felloe having apertures, the outer tire-carrying rim being provided on its inner side with a series of cups having central studs or posts. Tubular springs are seated at their outer ends in the cups with the studs entering their bores, while the inner ends of the springs are fitted with centrally apertured cups. Through these and the apertures of the wheel felloe radial bolts extend into the bores of the springs, the bolts being secured by nuts at inner and outer faces of the felloe as well as against the outer face of the apertured cup. The end of the bolts and rim studs or posts are spaced apart and disconnected to allow the springs to yield laterally as well as longitudinally.

No. 1,001,714—to Enos A. Wall, Salt Lake City, Utah. Granted August 29, 1911; filed February 25, 1911.

REGULATING VALVE.—A device to regulate the flow of liquids.

4. This valve has a high and a low



pressure chamber with a partition between them and having an opening therethrough. The opening is lined with a different material shaped to form an upper and a lower valve seat between the two chambers. Within the liner a pair of valve members are operatively mounted so as to engage the seats, a second liner of larger diameter being located within the chamber above the opening and a piston mounted in this liner serves to operate the valve members.

No. 1,001,620—to George W. Collin, assignor to the Collin Valve Co., Bridgeport, Conn. Granted August 29, 1911; filed November 18, 1908.

WELDING OR CUTTING TORCH.—A burner producing a long, hot flame, using two gases under various pressures for the purpose.

2. The torch includes a chambered head having passages delivering to the chamber thereof from sources of gas supply, a tip with an injector nozzle of reduced area communicating with one of the said passages. The injector nozzle delivers into a mixing channel communicating by means of a duct with the other passages and de-

livering to the mixing channel at a point closely adjacent the point of delivery of the injector nozzle, the tip having another duct also delivering from the last-mentioned passage to the mixing channel at a point removed from the point of delivery of the injector nozzle, which is illustrated in Fig. 4.

No. 1,001,136—to John B. Burdett, assignor to the National Pneumatic Co., Chicago, Ill. Granted August 29, 1911; filed December 24, 1910.

LIFTING-JACK.—Worm-gear type of automobile-lifting device.

4. The jack consists of a standard or column containing a lifting rack which engages with a pinion solidly mounted. A worm wheel is rigidly mounted, meshing with the pinion and having a common axis therewith and being driven by means of a worm. A frame which carries pinion, worm wheel and worm is pivoted to the column and adapted to move in one direction in order to bring pinion and rack out of engagement.

No. 1,000,140—to Herbert Austin, Bromsgrove, England; granted August 8, 1911; filed December 5, 1910.

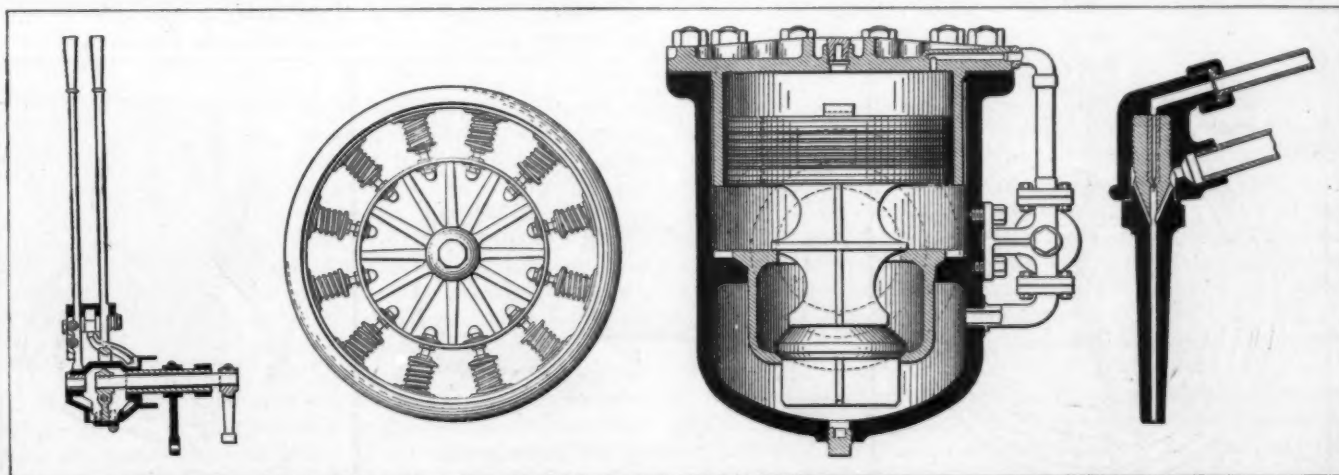


Fig. 1—Thomas control mechanism. Fig. 2—Wall spring wheel. Fig. 3—Collin regulating valve. Fig. 4—Burdett welding torch

Newest Ideas Among the Accessories

Cause of Blowouts

THE B. F. Goodrich Co., of Akron, Ohio, has supplied to us the following information in regard to the nature of the most frequent tire trouble, viz., blowouts:

Occasionally a tire will blow out from no apparent cause whatever. The tread seems to be in the best of condition, hardly worn, and yet, without warning, sometimes while standing in a garage, a bad blowout will occur.

The true condition, as shown in the cut, is that the tire has had a hard blow from a large smooth stone while running at high speed. Such a blow may cause the fabric to break seriously on the inside without leaving any mark on the outside. After that, it is only a question of time until the blowout occurs. Sometimes the break will allow a few plies of the fabric to pinch the inner tube, and the tire will deflate gradually.

It is because tire users do not understand such mysterious accidents as this that tires are so often misused, and the resulting breakdown blamed to faulty construction. The series of folders which is now being distributed by the B. F. Goodrich Company will help tire users to increase their mileage by having a better knowledge of the conditions which their tires are having to meet.

Brown Power Pump

Pure air is pumped into tires inflated by means of the Brown Impulse tire pump (Fig. 2), which is driven by the compression in one cylinder of the motor, a spark plug being removed to allow screwing the end of the pump into the valve cap. The pump is furnished with such interchangeable nipples of A. L. A. M. standard which permit of attaching it to any gasoline



Fig. 1—Showing the tread of a Goodyear tire, as well as portion of it doomed to puncture

motor. The piston in the pump carries lapped iron piston rings. The whole apparatus is of small dimension and weight. It takes from one to four minutes to inflate a tire by the use of this pump, which is the product of the Brown Company, whose factory is located at Syracuse, N. Y.

Tuto Electric Horn

The Tuto, Fig. 3, is an electric signal with the sound produced by a diaphragm, which is vibrated by an electromagnet. The device is composed of a double coil and armature, a metal rod attached to the latter and a diaphragm located in front of and vibrated through the action of the double coil. The energy needed to pro-

duce the signaling sound is furnished by a set of dry cells, which are brought into play by pressing upon a push button. A slight pressure thereon closes the circuit, the current passing through a resistance. The double coil serves to make and break the circuit, thereby vibrating the diaphragm, which by this motion is made to strike the metallic rod extending toward it from the armature. This produces the sound, which is of a low but clear sort. The horn may also produce a high piercing note. The Dean Electric Co., of Elmira, Ohio, makes this signal.

Manco Safety Lock

The Manco safety lock is an accessory of manifold use for locking up change-speed lever, magneto and throttle controls, etc. It consists of two jaws (Fig. 4), hinged together. The jaws are capable of moving freely when the cam in the head is not in frictional engagement with its mating member, but when they are brought into engagement and the lock in the head is given a turn by the key, they are locked. The teeth of the two jaws are rounded. The lock will serve well in locking speed-change and emergency-brake levers together, in securing the throttle and ignition levers to the steering wheel or attaching the handle of a suit case to the railing of the car. Since the locking of the device is done on a friction basis of two members, it is possible to use the lock in fastening a coat or like article to a brass railing, thereby closing the lock as tightly as possible on the goods to be secured and then locking the accessory through the office of the key. The form of the teeth prevents their injuring the fabric of the material thus fastened to the car. The M. A. N. Manufacturing Company, of Providence, R. I., is the maker of this lock.

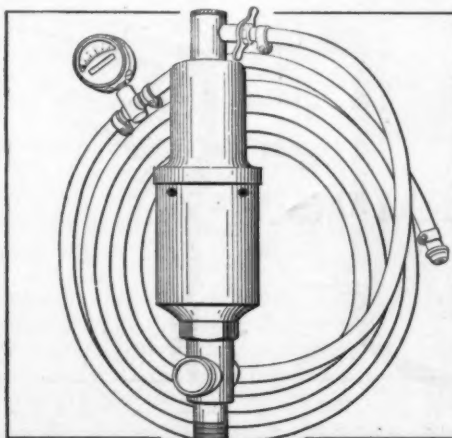


Fig. 2—Brown impulse tire pump

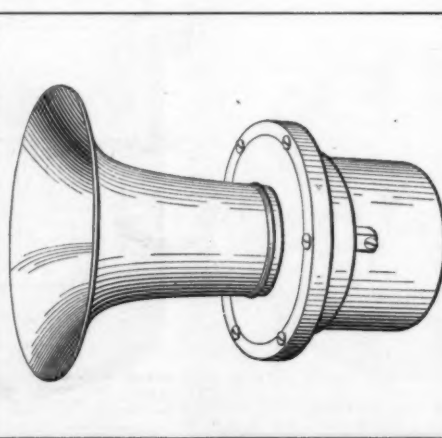


Fig. 3—Tuto electric horn

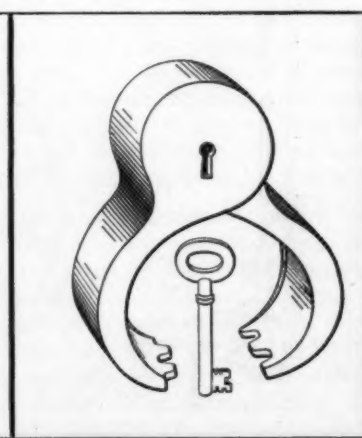


Fig. 4—Manco safety lock